INTRODUCTION TO THE TIMÆUS.

The following Dialogue, *which comprises the detailed evolution of the physical or cosmological doctrines of Plato*, is supposed to have taken place on the day following that on which Socrates had been discussing with the same party the nature of an ideal or pattern Republic; and there is so far an internal connexion between the two dialogues, that both will be found to contain the same doctrines of the Ideas (εἴδη or ἰδέαι) and the *Summum bonum* (viz. τὸ ἕν in contradistinction to τὸ γιγνόμενον. Comp. Tim. ch. ix.),, though presented under different aspects,—the former treating them in their relation to moral and political perfection, the latter physically and cosmologically, displaying the beauty, perfection, and benevolence of the Divine work in the formation of the Universe and the organization of Man. The dialogue opens with a lively conversation on the political notions set forth by Socrates (or rather elicited by him from the rest) on the preceding day, more especially with reference to their practicability in real life (ch. i.—iii.):—and Critias, to gratify Socrates, introduces the narrative of a long interview between Solon and some Egyptian priests, about the relative antiquity of the Grecian and Egyptian annals, the object of which is to prove, that the state of Athens, in very remote times, corresponded mainly with the picture of a perfect republic, as exhibited by Socrates (ch. iv.—vii.). The subject, however, is deemed worthy of still further investigation by the different parties present; and the first turn is unanimously conceded to Timæus, the Pythagorean, on account of his profound knowledge of physics and astronomy, who accordingly entertains them with a long and learned discourse on the origin of the Universe and the formation of Man,—Critias following him in the succeeding dialogue called by his name, wherein he tries to show that the men here ideally created (τῷ λόγῳ γεγονότας) by Timæus, and brought into civil training by Socrates in the Republic, actually corresponded in character with the citizens of primitive Athens (ch. vii., viii.).

It is necessary to premise, however, before we enter into any analysis of Timæus's discourse, that Plato, regarded as a *physical theorist*, was not so much the propounder of new and

original views, as a critic and eclecticist, reviewing the various systems that had preceded him, opposing what he deemed false or vicious, and adopting what he thought good and solid in each. Now all the earlier philosophers, whether of Ionia or Magna Græcia, had made it their first business to start different theories, more or less visionary, on the origin of the Universe. Thales held the primary element to be *water*, Anaximenes and Diogenes *air*, Anaximander a vast *chaos*, and Heraclitus *fire*,—to whom at length succeeded Anaxagoras, the first to recognise *a Supreme Intelligence* (νοῦς) as the principle of life and arranger of the primitive chaotic atoms (and from whom Plato undoubtedly took some of his leading notions). Widely differing from the above, Xenophanes maintained *unity* (τὸ ἕν)—*the Universe, to be God*,—a notion, which elicited from Parmenides the atheistic dogma, that, as existence is conceivable, and non-existence is not so, *creation is impossible*, as it pre-supposes non-existence; and in this view he was followed by Empedocles, who regarded all things as alike uncreated and indestructible. When such notions were current, it can scarcely be matter for surprise that Heraclitus should have put forth the doctrine (equally atheistical) of *a perpetual flux*, and been followed by the sophist Protagoras, who stated that *all knowledge is sensation*, and that *man is the measure of all existing things whatever*. And lastly, it was the notion of Pythagoras (with whose views Plato was beyond all doubt deeply imbued), that *numbers* and *music* are the principles of the entire universe, and that the world is regulated by *numerical harmony*.* With all these conflicting views before him, and having at the same time a strong internal conviction of one grand, comprehensive, and intelligent Unity,—in other words, God,—Plato at once boldly impugned the doctrine of the Eleatics, that the world around was an eternal, immutable essence;—maintaining, on the other hand, that, as it was sensible, it must have been produced, and was in fact the necessary result of an effective cause,—*the work of a rational, intelligent, and benevolent Architect*.

Timæus, therefore, in this dialogue,—after stating *in limine* that there are two classes of things, the one eternal, *constant* (ταὐτόν), and not subject to change; the other *mutable* (θάτερον), generated, and liable to decay: the former of which is comprehended by the intellect, the latter by the senses,—broadly sets forth the grand doctrine of Theism, that whatever is generated must proceed from some cause, namely God, who formed the sensible universe, the most perfect of things generated, according

* The reader is referred for further information on the pre-Socratic theories of nature, to Stallbaum's Prolegomena to the Timæus, pp. 48—54; as well as to Introductions to the Protagoras and Theætetus, in vol. i. of this translation.

to an eternal pattern existing in the Divine Mind (ch. ix.). The whole, indeed, was the work of the Creator's goodness; and the universe itself likewise was very good,—as it were, an ensouled, rational, living being,—perfect in unity, and composed of four elements indissolubly united,—earth and fire, air and water,—its shape being that of a perfect sphere moving in a circular orbit, and its soul emanating from its abode in the centre to all the other parts, including even the external surface,—in fine, it came forth from its Maker deficient in no single respect, "a blessed God" (ch. x.—xii.).

He next proceeds to unfold the nature and structure of the Universe in its several parts. And first, he assumes it to consist of two parts,—one eternal and fixed, because related to the world of intellect; the other corporeal, mutable, and capable of division,—both of which are so united on the principles of number and music, as to produce a happy and well-settled harmony both in structure and motion. This universal soul, moreover, pervades even the distant orbits of the fixed stars and planets, all of which depend for their life and circular motion on the eternal and constant principles of number and harmony,—the fixed stars moving *westward* on the eternal principle of sameness, the planets *eastward* on that of mutability and difference (ch. xii.). But in connexion with this soul, the universe possesses also a material body, whereby it becomes cognizant of material things, —the subjects of opinion and persuasion, as well as of the abstract truths that form the groundwork of reasoning and science (ch. xiii.).* Next came the creation of *time*, which was effected by the formation of the sun, moon, and five planets, whose motion, particularly that of the first, creates, determines, and watches over, the several divisions of days and nights, months and perfect years (ch. xiv.). The form and motions of the world thus once arranged, the Creator proceeds to people it with living beings,—first, the heavenly gods (*i. e.* the stars and other

* Plato, in ch. xxiii. designates *matter* as the receptacle, and, as it were, the nurse (ὑποδοχὴν, οἷον τιθήνην) of all production; while God, on the other hand,—the sum of all ideas,—is the Father and fashioner of the Universe. In ch. xxvi. also, it is described as one and the same with space, which furnishes a place for all generated things. This principle of nature, therefore, is without form,—without *an idea;* and it is only in the productions of the creative energy and the all-susceptible nature,—that is, in the son of the father and mother,—that there is form and determinate idea. This is clearly laid down in ch. xxiv.; and Ritter accordingly very rightly observes:—"Matter is nothing more than the condition of all human existence, which, however, is a necessary condition, and so causes the *natural* itself to appear as *necessary;* whereas the shape received from the good is that which under this condition comes into being and has its actual existence in nature."—(Ritter, ii. p. 341, compared with ch. xliii. of this Dialogue.)

celestial bodies); secondly, airy and winged creatures; thirdly, those living in the water; and lastly, those moving on the earth. The stars, indeed, are termed a race of heavenly gods, yet generated and visible, endowed with fiery, spherical bodies, and called immortal, as not being subject to dissolution or decay (ch. xv.); but whether the earth itself is, like the other bodies, to be considered an ensouled, generated god, and whether at rest or in motion, is not exactly certain.

Next follows a narrative, almost purely mythical, of the formation of the mortal races of animals (ch. xvi.—xviii.), which the Supreme himself does not deign personally to create, but commits that task to the lower gods, reserving only the office of imparting to these new creatures whatever was to be immortal in their constitution. A like number of these perishable animals is assigned to each of the stars; and the first birth being the same in all,—that of the human male; nor was it till after a fixed period, that the female and all other animals,—beasts, fishes, and birds,—issued from this mortal form. Of this being, Man, consisting, like the universe, of body and soul mysteriously conjoined, Timæus next gives a detailed description, beginning with the head, which contains the leading organs of sense (ch. xix., xx.); and he then diverges into a long investigation of the elements of earthly bodies, particularly as respects their geometric forms, as well also, as of their various affections, viz. motion or rest, heat or cold, heaviness or lightness, smell, colour, &c., the discussion of which must necessarily precede any satisfactory account of the intellectual and physical man (ch. xxi.—xlii.). Man, he proceeds to observe, is composed of a corruptible body enshrining an immortal soul; but besides this, he possesses an inferior sort of soul, whereby he becomes cognizant of the various passions and emotions, viz., pleasure and pain, hope, fear, anger, desire, &c.; and all the parts of his body are composed with wonderful skill, and yet kept in constant subjection to the dominance of reason and intellect:—and he now parenthetically intimates the existence of two sets of causes,—the *divine* and *necessary*,—as constantly operating together; of the former of which we can gain only a very imperfect knowledge (though for our happiness' sake we should ever aspire thereto), while the latter we should investigate for the sake of getting at the former (ch. xliii.).

Next succeed separate and particular (though somewhat fanciful) descriptions of the heart, lungs, stomach, liver, spleen, intestines, spinal marrow and brain, skull and bones, ligaments and tendons, muscles and flesh, the nerves round the head, teeth, tongue, lips, hair, skin, pores, &c. &c., all of which are kept in healthy action by the united operation of the alimentary and respiratory systems (ch. xliv.—lxii.),—the

object of the whole of these speculations being to show the existence of design and the adaptation of means to ends throughout the work of creation. Now the regular, unimpeded, action of all these organs and component parts constitutes bodily health; whereas the disorders and decay of the component elements of life are either productive of disease or else slowly bring on old age and bodily decay (ch. lxii.). Then follow some curious details respecting the diseases of the body, which are ascribed to many various causes, mostly fanciful,—some few only real, formed on a knowledge of the human frame (ch. lxiii.—lxviii.). Far more important, however, and far more severe, are the diseases of the soul; and these are assigned to two causes,—first, bodily infirmity, and secondly, improper training, it being a vulgar error to suppose that any one is willingly evil. The great, and indeed only disease of the soul, is madness, which assumes two forms,—madness (*μανία*), and folly or idiocy (*ἀμαθία*), both caused by the unhealthy predominance of the animal passions over the reason and conscience. Great care must therefore be observed constantly to maintain the *mens sana in corpore sano*, to attend diligently to both, without neglecting either,—to form the body by constant and suitable exercise as well as strict temperance, and to cultivate the soul by engaging the intellect in the contemplation of divine things and eternal truth, including those heavenly revolutions with which the human soul also has a close relation and harmony (ch. lxix.—lxxi.).

The concluding chapters of the dialogue comprise some observations on the origin of the lower animals, from which it appears that Plato entertained the Pythagorean doctrine of the transmigration of souls; for he thinks it probable that those who have lived unrighteously and effeminately will, at their second birth, be changed into women,—those of both sexes who have lived innocently but frivolously, foolishly believing that heavenly things could be seen by mortal eye, being changed into birds of the air; those, thirdly, who have been totally estranged from philosophy, into beasts of the earth; and those, fourthly, who are to the last degree foolish and ignorant, becoming mere fishes, creatures of the water, to whom the gods that formed them have denied even the privilege of breathing a thin and pure atmosphere (ch. lxxii., lxxiii., compared with ch. xvii., where he touches, though more briefly, on the same philosophic dogma). Lastly, the whole dialogue concludes with a brief, but elegant summary of the great doctrine, of which the philosopher has exhibited throughout it so many satisfactory proofs,—that "this world, which comprises and is filled with all kinds of living beings, both mortal and immortal, thus becomes a visible animal embracing visible natures,—an image

of the great Intelligence,—a sensible god,—the greatest and best, the fairest and most perfect,—this the one and only begotten Universe."

Such is a succinct account of the leading arguments of the Timæus, which, both as respects language and deep philosophic matter, is by far the most difficult of any of Plato's dialogues,—there being many passages in it, which still in fact puzzle even the most ingenious of its commentators. The reader who would seek further information than can be afforded within the limits of a translation, is referred to Tiedemann's Introductions to the Platonic Dialogues, to Stallbaum's Prolegomena and notes to his edition of the Timæus, to Ritter's remarks on the physical doctrines of Plato (vol. ii. pp. 338—384), and, above all, to the valuable notes and dissertations in Martin's *Etudes sur le Timée de Platon*, 2 vols. 8vo. 1842.

THE TIMÆUS.

SOCRATES, TIMÆUS, CRITIAS, HERMOCRATES.

I.—Soc. One, two, three:—but where, dear Timæus, is that fourth of us who yesterday were your guests, but are entertainers now?

Tim. Some illness has befallen him, Socrates; for he would not willingly have missed such a meeting as the present.

Soc. It is your business, then, of yourself, and [that of] these present, to fill up the place of the absent guest.

Tim. Quite so, Socrates; and, as far as we can, we will not fail to do so: for it would be unjust for the rest of us, whom you yesterday so handsomely entertained, not to treat you with readiness in return.

Soc. Do you recollect, then, the magnitude and nature of the things on which I charged you to speak?

Tim. Some, indeed, we do recollect; but what we do not, you, who were present, can recal to our memory: or rather, if it be not too much trouble, once more briefly run over the whole from the beginning, that it may be the more firmly established in our minds.

Soc. Be it so. The sum of yesterday's discussion respecting a republic was, what form I thought the best, and of what sort of men it should be composed.

Tim. And indeed, Socrates, all that you said was quite according to our mind.

Soc. Did we not in the first place separate the class of husbandmen, and ever so many other artificers, from that of those who fight in defence of the state?

Tim. Yes.

Soc. And when we had assigned to every one that single employment which was suited to his own nature, and had prescribed to each his particular art, we bade the military caste confine themselves to the simple duty of protecting the state from the hostile incursions both of internal and external foes;—mildly to administer justice to their subjects, as being naturally friends, but fiercely to combat with such foes as might fall in their way.

Tim. Quite so, of course.

Soc. We asserted, I think, that the souls of the guardians should be naturally high-spirited, and at the same time remarkably philosophic, so as to enable them towards either friends or foes respectively to be gentle or severe.

Tim. You did so.

Soc. But what about their training? Did we not say that they ought to be instructed in gymnastic exercises, music, and other suitable branches of science?

Tim. Yes.

Soc. With respect at least to those thus trained, it was somehow said, that they should regard neither gold nor silver nor any such property, as their own private possession, but rather, like subordinates, should receive the wages of their guardianship from those whom they defend and preserve, their recompense being no more than sufficient for temperate men, and that they should spend their income in common, with a view only to mutual subsistence, bestowing their attention wholly on virtue, in preference to every other pursuit.

Tim. This too was so stated.

II.—Soc. Respecting women, too, we asserted that their nature should be aptly conformed to resemble that of men, and that they should all engage in common with them, both in the duties of war and the other employments of life.

Tim. This too you alleged.

Soc. But what about the procreation of children? This perhaps you easily remember, on account of the novelty of the proposal; for we ordered that marriage-unions and children should be in common to all persons whatsoever, special care being taken also that no one should be able to distinguish his own children individually, but all consider all as their kindred; regarding those of an equal age, and in the prime of life, as their brothers and sisters,—those prior to them,

and yet further back, as parents and grandsires,—and those below them, as their children and grandchildren.*

Tim. Aye,—these things too, in the way you describe them, are easily remembered.

Soc. That they might at once acquire then the best possible natural disposition, I recollect that we decreed that the rulers, male and female, whom we placed over the marriage contract, should secretly contrive, through certain lots, that the worthy should assort only with the worthy, the base with the base,—and that no discord might arise from this connexion, we should refer all the blame of the union to fortune alone.

Tim. This, too, we remember.

Soc. We ordered, moreover, that the children of the good should be properly trained, but those of the bad secretly sent to the other part of the state, while of those who are constantly arriving at manhood, such as are found to be of a good disposition, should be recalled from exile; those, among them, on the contrary, who have proved themselves unworthy, being in their turn banished to the place occupied by those just promoted.

Tim. Just so.

Soc. Have we, then, sufficiently summed up yesterday's discussion; or do we need anything further, friend Timæus, that has been omitted?

Tim. By no means, Socrates; for these were the very things discussed.

III.—Soc. You shall now hear some further details respecting the republic that we have described, and how I feel towards it. The feeling, then, seems to me somewhat similar to this,—as if some one, on beholding beautiful animals, either wrought by the graver's art, or really alive, but in a state of perfect rest, were to entertain a desire to behold them in motion, struggling, as it were, in those exercises which seem best suited to their bodies. Just the same do I feel towards that form of state which we have described; for I should gladly listen to any one who recited the story of the contests that one state engages in with others, when it ventures becomingly on war, and exhibits in the course of

* This subject is considered at some length in the third, fourth, and fifth books of the Republic, as well as in the Laws, v. 739, b.

it a conduct worthy of its nurture and training, as regards both active encounters and verbal negotiations with individual states. On these points, indeed, Critias and Hermocrates, I am conscious of my own inability to praise the men and the state according to their desert; and that I should be so incapable is no wonder, as I have formed the same opinion respecting the poets both of the past and present age;—not that I despise the poet-tribe, but still every one must see, that being an imitative race, they most easily and in the best manner imitate those things in which they have been trained; while, on the contrary, whatever is unconnected with their training, is hard for them to imitate well even in actions, and in words even yet more difficult. And as for the tribe of Sophists, I deem them indeed mighty clever, both in multiplying words and many other fine accomplishments; yet I fear, as they have no settled abode, but wander through various cities, and dwell in no abode of their own, they will form false conjectures respecting both philosophers and politicians, as to the magnitude and nature both of the actions which they achieve in war, and of the words they employ in their mutual intercourse. The only people remaining, then, to whom I can apply, are those of your character and habit, versed both by nature and training in philosophy and political science. For Timæus here of Locris, in Italy, which is governed by the best of laws,* being withal not inferior to any of his fellow-citizens in wealth and nobility, has in his own state attained to the highest official honours, and has likewise in my opinion reached the summit of all philosophy. Critias, too, as we all know, is not ignorant of the particulars that we are now mentioning;—and respecting Hermocrates also, we have ample testimony for the belief that he is both by nature and education well suited to all these pursuits.† Hence, when I perceived yesterday your great

* Its code was formed by Zaleucus, and it was said by the Syracusans to the best governed of all the Greek cities of Italy. Comp. the Laws, i. 638.

† Critias was a man of a generous, vigorous-minded disposition, who was so fond of the company of philosophers, that he was said to be ἰδιώτης μὲν ἐν φιλοσόφοις, φιλόσοφος δὲ ἐν ἰδιώταις. He was afterwards one of the thirty tyrants, and Socrates' most bitter enemy. Hermocrates was a celebrated Syracusan general, several times alluded to by Thucydides and Xenophon, and who made a vow to live by certain rules (κατὰ νόμον ζῆν ἐφιέμενος).

anxiety to discuss the formation of a republic, I was much pleased at it, being well aware, that if you pleased, none could better unfold the successive points for discussion; — inasmuch as, by properly adapting the state for warlike purposes, you would be the only person in the present age who could supply it with all things becoming its constitution. Having spoken, then, in compliance with your request, I now require you, in your turn, to comply with mine; and, as a matter of course, you have agreed to carry on the discussion among yourselves in common and so forthwith repay my hospitality with the feast of reasoning. Here, therefore, am I arrayed for the purpose, and readiest of all to partake of the promised banquet.

IV.—Herm. Aye, truly, Socrates, as Timæus here just observed, neither will we lack zeal in fulfilling your desire; nor will we offer any excuse for neglecting it; since only yesterday, just after leaving this, when we went to the lodging of Critias, where both there and before that on the way thither, we discussed this very subject. He here then unfolded to us a story from ancient tradition, which—prythee, Critias, even now repeat to Socrates, that he may judge whether or not it concerns his demand.

Cri. This we must surely do, if agreeable to Timæus, our third partner in this discussion.

Tim. I, for my part, fully consent.

Cri. Listen now then, Socrates, to a story very strange indeed, yet in every respect true, as it was once related by Solon, the wisest of the seven [sages of Greece]. He was the kinsman and intimate friend of our great-grandfather Dropides, as he himself often tells us in his poems; and he (Dropides) informed our grandfather Critias (as the old man himself in turn told us), that this state had formerly achieved great and admirable actions, the knowledge of which nevertheless had been lost through lapse of time and the decay of mankind,—one act in particular being more illustrious than the rest,—in remembrance of which it were fitting, that we should not only return you thanks, but also in full assembly hymn forth to the godoess our true and just acclaim of praise.

Soc. Well observed: — but what is this achievement, which Critias described as having been not only related

by Solon, but really accomplished by this state in days of yore?

Cri. I will acquaint you with that ancient story, which I indeed received from no mere youth; for at that time Critias, as he himself said, was almost ninety years old, and I myself about ten; and it chanced then to be the time of the *Cureotis Apaturiorum*.* The boys indeed were then going through the ceremonies customary with them at this festival;—for our parents proposed prizes for singing verses; and therefore a multitude of verses of many poets were recited, and many of us especially sang the poems of Solon, as being at that time new. Then one of our tribe, whether it was his real opinion or he wished to gratify Critias, said he thought Solon not only the wisest of men in matters generally, but as regards poetry the most noble of all poets. On hearing this, the old man (for I well remember it) was exceedingly pleased, and said, laughing—'If Solon, oh Amynander, had not considered poetry as a mere amusement, but made it, as others do, a serious employment, and so completed the history which he had brought from Egypt; and, had not been forced to relinquish it by the seditions and numerous other troubles in which he found his country involved, I do not think that either Hesiod, Homer, or any other poet, would have acquired more distinguished renown.' 'And what was that story, Critias?' asked he. 'One about an action,' replied he, 'the greatest and most celebrated, which this state ever achieved; although, through lapse of time and the death of those by whom it was undertaken, its fame has not descended to our own day.' 'Tell it,' said he,

* The *Apaturia*, according to Proclus and Suidas, were festivals in honour of Dionysus, publicly celebrated for the space of three days; and they were assigned this name, *δι' ἀπάτην*, that is, on account of the deception through which Poseidon is reported to have vanquished Xanthus. The first day of these festivals was called *δόρπεια*, in which, as the name indicates, those of the same tribe feasted together; and hence (says Proclus) on this day *εὐωχίαι καὶ δεῖπνα πολλά*, splendid banquets and much feasting took place:—the second day was called *ἀναῤῥύσις*, *a sacrifice*, because many victims were sacrificed in it; the victims being called *ἀναῤῥύματα*:—the third day, of which Plato speaks in this place, was called *κουρεώτης*, because on this day *κοῦροι*, that is, boys or girls, were collected to have their names registered in their tribes (*φρατρίαι*:)—to these some add a fourth day, which they call *ἐπίδα*, or *the day after*.

'from the beginning; and say what that was, which Solon asserted as true, as well as how and from whom he heard it.'

V.—'In Egypt,' said he, 'in the Delta, about the summit of which the streams of the Nile are divided, is the district (*νομός*) surnamed Saitical; the chief city of which is Sais, whence also came the king Amasis; and it had a presiding divinity, whose name is in the Egyptian tongue *Neith*, which they say corresponds with the Greek *Athena;* and the people profess to be great friends of the Athenians, and united with them in a sort of close alliance. Solon said that on his arrival thither, he was very honourably received; and, especially, on his inquiring about ancient affairs of those priests who possessed superior knowledge in such matters, he perceived that neither himself nor any one of the Greeks (so to speak) had any antiquarian knowledge at all. And once on a time desirous of inducing them to narrate their ancient stories, he undertook to describe those events which had formerly happened among us in days of yore,—those about the first Phoroneus and Niobe, and again after the deluge of Deucalion and Pyrrha (as described by the mythologists), together with their posterity, paying due attention to the different ages in which these events are said to have occurred: —on which one of their extremely ancient priests exclaimed, "Solon, Solon, you Greeks are always children, and aged Greek there is none." Solon, on hearing this, replied, "How can you say this?" To whom the priest, "You are all youths in intelligence; for you hold no ancient opinions derived from remote tradition, nor any system of discipline that can boast of a hoary old age:—and the cause of this is the multitude and variety of destructions that have been and will be undergone by the human race, the greater indeed arising from fire and water, others of less importance from ten thousand other contingencies. The story, for instance, that is current among you, that Phaeton, the offspring of the Sun, once attempting to drive his father's chariot, and not being able to keep the track observed by his parent, burnt up the surface of the earth, and perished himself, blasted by lightning, is generally regarded as fabulous, but in point of fact it refers to a declination (or parallax) of the heavenly bodies revolving round the earth, and indicates that, at certain long intervals

of time, the earth's surface is destroyed by mighty fires.* When this occurs, then those who dwell either on mountains, or in lofty and dry places, perish in greater numbers than those dwelling near rivers, or on the sea-shore;—whereas to us the Nile is not only our safeguard from all other troubles, but liberates and preserves us also from this in particular;—and again when the gods, to purify the earth, deluge its surface with water, then the herdsmen and shepherds on the mountains are preserved in safety, while the inhabitants of your cities are hurried away to the sea, by the impetuosity of the rivers. In this our country, on the other hand, the waters neither then fell, nor ever have fallen from above upon the plains, but on the contrary are naturally driven upwards from the earth's interior:—and to these causes it is owing, that the most ancient things are said to be here preserved. The truth is, however, that in all places where there is neither intense cold nor immoderate heat, the race of man is always found to exist, sometimes in less, sometimes in greater number. And all the noble, great, or otherwise distinguished achievements, performed either by ourselves, or by you, or elsewhere, of which we have heard the report,—all these have been engraven in our temples in very remote times, and preserved to the present day; while, on the contrary, with you and all other nations, they are only just committed to writing, and all other modes of transmission which states require,—when again, at the usual period, a current from heaven rushes on them like a pestilence, and leaves the survivors among you both destitute of literary attainments and unacquainted with music;—and thus you become young again, as at first, knowing nothing of the events of ancient times, either in our country or yours. As for the transactions, indeed, Solon, which you have just related from your antiquities, they differ but little from puerile fables:—for in the first place you only mention one deluge of the earth, whereas there had been many before; and in the next place you are unacquainted with that most noble and excellent race of men, who once inhabited your country, from whom you and your whole present state are descended, though only a small rem-

* It was the opinion of Heraclitus and many of the old philosophers, that the earth would be periodically destroyed by fire or water. The notion was borrowed, perhaps, from the Egyptians. (Comp. Herod. ii. ch. 142.)

nant of this admirable people is now remaining,—your ignorance in this matter resulting from the fact that their posterity for many generations died without the power of speech through the medium of letters;* for long before the chief deluge, a city of Athenians existed, regulated by the best laws both in military and all other matters, whose noble deeds and civil institutions are said to have been the most excellent of all that we have heard to exist under heaven."

VI.—'Solon, on hearing this, expressed his admiration, and exhibited the most ardent desire, entreating the priests to relate to him accurately and in order the whole history of his ancient fellow-citizens. And then one of the priests replied, "I have no objection, Solon; and for your sake, and that of your city, I will relate the whole, and more particularly on account of that goddess, to whom is assigned the guardianship both of your state and ours, and by whom both have been founded and fostered; yours indeed having a priority over ours of a thousand years, from having received its origin from Hephæstus and the Earth; and the annals even of our own city [Sais] have been preserved eight thousand years in our sacred writings. I will briefly describe, then, the laws and more illustrious actions of those states which have existed nine thousand years; and when we are more at leisure, we will take the sacred writings themselves, and recount an exact history of every particular.

'"Now, consider the laws of these people, as compared with those prevailing here; for you will find here even at the present day many examples of institutions that formerly existed in your city. First of all, the priests passed their life separate from all the rest; and next, the artificers so exercised their crafts, that each followed his own employment without mingling with any other class of workmen. The same method was likewise adopted with shepherds, hunters, and husbandmen. The soldiers, too, you will find, were separated from other kinds of men, and were enjoined by the laws to engage in nothing but war. The armour, too, which each employed, such as shields and darts, resembled that which we used first of all the Asiatics,—the goddess in those places, as she did to you, first pointing out their use. Again,

* Gr. *γράμμασι τελευτᾶν ἀφώνους*, which can only be paraphrastically rendered.

with respect to wisdom, you may perceive what attention the law paid to it even from the first, as likewise to all that respects the universe, including even divination and medicine, that conduces to the preservation of health; and from these, which are divine things, the inquiry proceeds to human affairs and all other branches of learning therewith connected. Such then was the principle of distribution and arrangement on which the goddess first founded and established your state, choosing for that purpose the place in which you were born; because she foresaw that from its excellent temperature, the region would produce men of the most consummate wisdom; and, the goddess, of course, being a lover both of wisdom and war, selected a spot likely to produce men most resembling herself; and fixed on this first as their settled abode. You proceeded to settle, then, under the protection of such like laws, and what is more, under good government, surpassing all men likewise in every virtue, as becomes the descendants and disciples of the gods.

'"Many and mighty deeds of your state, then, are here recorded in writing [in our sacred records,] and call forth our admiration; nevertheless there is one in particular, which in magnitude and valour surpasses them all;—for these writings relate what a prodigious force your city once overcame, when a mighty warlike power, rushing from the Atlantic sea, spread itself with hostile fury over all Europe and Asia. That sea indeed was then navigable, and had an island fronting that mouth which you in your tongue call the Pillars of Hercules; and this island was larger than Libya and Asia put together; and there was a passage hence for travellers of that day to the rest of the islands, as well as from those islands to the whole opposite continent that surrounds that the real sea. For as respects what is within the mouth here mentioned, it appears to be a bay with a kind of narrow entrance; and that sea is indeed a true sea, and the land that entirely surrounds it may truly and most correctly be called a continent. In this Atlantic island, then, was formed a powerful league of kings, who subdued the entire island, together with many others, and parts also of the continent; besides which they subjected to their rule the inland parts of Libya, as far as Egypt, and Europe also, as far as Tyrrhenia. The whole of this force, then, being collected in

a powerful league, undertook at one blow to enslave both your country and ours, and all the land besides that lies within the mouth. This was the period, Solon, when the power of your state was universally celebrated for its virtue and strength;—for, surpassing all others both in magnanimity and military skill, sometimes taking the lead of the Greek nation, at others left to itself by the defection of the rest, and brought into the most extreme danger, it still prevailed, raised the trophy over its assailants, kept from slavery those not as yet enslaved, insured likewise the most ample liberty for all of us without exception who dwell within the Pillars of Hercules. Subsequently, however, through violent earthquakes and deluges which brought desolation in a single day and night, the whole of your warlike race * was at once merged under the earth; and the Atlantic island itself was plunged beneath the sea, and entirely disappeared;—whence even now that sea is neither navigable nor to be traced out, being blocked up by the great depth of mud† which the subsiding island produced." ' ‡

VII.—The above, O Socrates, is the sum of what the elder Critias repeated from the narration of Solon:—and when yesterday you were discoursing about a republic and the citizens composing it, I was reminded to my surprise of what I have now mentioned; for I perceived how divinely, as it were, by a kind of good luck, and without wandering from the mark, you in most respects coincided with Solon's statement. Still I was unwilling to disclose these particulars immediately; since, from the long lapse of time since I first heard them, I did not remember them with sufficient accuracy [for repetition]. I considered, therefore, that I ought, before relating it, first of all to rehearse the whole diligently to myself. And this was why I yesterday speedily complied

* *τὸ παρ' ὑμῖν μάχιμον*. So reads Stallbaum, on the authority of several MSS., the old reading being *παρ' ὑμῶν*, which is retained by Bekker.

† Gr. *πηλοῦ κάρτα βαθέος ἐμποδὼν ὄντος*. The old reading is *καταβραχέος*. We have here followed Bekker's emendation.

‡ The whole of the story about the Atlantic isles, so much canvassed by the critics, is so improbable and so at variance with the geographical knowledge of the Greeks, even in Plato's time, that it can only be considered as a mere myth. See Martin's admirable remarks, *Etudes sur le Timée*.

with your demands, conceiving, as is most important in such matters, that we ought not to lack ability to present a discourse suited to the object in view. Hence was it, as Hermocrates here observed, that as soon as we left here yesterday, I brought up the subject before my friends here, in order to refresh my memory; and by afterwards meditating on it at night, I acquired nearly a complete recollection of the whole story. According to the proverb, indeed, what we learn in childhood takes a wonderful hold on the memory: —for with respect to myself, for instance, I am not certain that I could recall the whole of yesterday's discourse, though I should be very much astonished if anything that I had heard a very long time ago were to escape my remembrance. What I then heard, indeed, was listened to with great pleasure and delight; and the old man very readily recounted it, even when I frequently asked for a repetition; and thus the story became like the brands of indelible writing fixed in my memory. Well then, as soon as it was day I repeated the narrative to my friends, that they might aid me in fairly recounting my story. Now, therefore, as respects the object of all that has been said, Socrates, I am prepared to relate, not only the general heads, but the particulars also of all that I heard. As for the citizens and state which yon described to us yesterday as in a fable, we will now convert it into a reality, and consider the state established by yon as no other than this [of Athens,] and the citizens which you described as no other than those real ancestors of ours, alluded to by the Egyptian priests. Indeed they will harmonize in every respect; and we shall not be far from the mark * in asserting that your citizens are the very people who existed at that time. Each taking our share then in this discussion, we will try our utmost to bestow suitable attention to the task that you have assigned us. It is requisite therefore to consider, O Socrates, whether this narrative answers our purpose,† or we should seek some other in its stead.

Soc. And what other, O Critias, can we receive in preference to this, which, from its affinity, is extremely suitable to the festival of the goddess, and has the all-important merit

* Gr. *οὐκ ἀπᾳσόμεθα, lit. we shall not sing out of tune.* The old reading is *ἀπωσόμεθα*, which is untranslatable.

† Gr. *εἰ κατὰ νοῦν ὁ λόγος ἡμῖν οὗτος.*

of being not a cunningly devised fable, but a true history? It is impossible, therefore, to say, how and whence, if we abandon your narrative, we should find another more suitable. We cannot; but must acknowledge that you have been happy in your narration; and, as for me, after my discourse of yesterday, I will now rest, and be in my turn a listener.

VIII.—Cri. Consider then, Socrates, the arrangement of this banquet of yours, how we settled it. For we think it right that Timæus, who is the most astronomical of us all, and has bestowed much pains in acquainting himself with the nature of the universe, should be the first to discourse to us, beginning from the creation of the world, and ending with the nature of men;—and also that I after him, receiving from him, as it were, the men which have been ideally produced—and some of them, too, excellently educated by you,—should introduce them among us here, according to the word and law of Solon, as to proper judges, and make them members of this city; as being really those very Athenians of bygone days, which were described as unknown to us in the report of the sacred writings;—and so, in future, we will treat them in our discourse as citizens and Athenians.

Soc. I am now, it seems, to be plentifully and splendidly entertained in my turn with a banquet of arguments:—it is for you, then, O Timæus, to begin the discourse, having first of all invoked the gods according to the usual custom.

Tim. Well, Socrates, this at any rate is true, — that those who have even the least share of wisdom, always invoke the deity on entering every undertaking, whether small or great; and so we likewise (unless we be in every respect unwise) who are now about to speak concerning the universe, whether it be generated or without generation, shall (if we be not very unwise) make it our first duty to invoke the gods and goddesses, and pray that what we speak may be first of all pleasing to them, and also in consistence with ourselves. And as respects the invocation of the gods, so have I acted for myself; while as respects ourselves, we must lead you by that way which you may most easily understand, and which will best enable me to explain my meaning about the proposed subjects of discussion.

IX.—I think we ought, in the first place, to define what

that is which is *ever-existent*, and has no generation; and what that is which is *in a state of generation* or becoming, but never really *is*. The former of these, indeed, which is apprehended by reflection united with reason, always subsists according to *sameness*;*—while the latter is perceived by opinion united with irrational perception; since it subsists in a state of generation and corruption, and never really is. And, again, whatever is generated is necessarily generated from a certain cause; for it is wholly impossible that anything should be generated without a cause. An artificer, therefore, of anything, if he looks to that which always subsists according to sameness, and from this as a sort of pattern, works out the form and nature of his work, he must thus, necessarily, produce something wholly beautiful:—but where he employs for his pattern only what is generated, it cannot be beautiful.

Let this universe then be called *heaven*, or *the world*, or by any other name that it usually receives; and let us, in the first place, consider respecting it, what ought to be investigated at the very outset of our proposed inquiry about the universe,—whether it always existed, having no beginning, or was generated, beginning from some certain commencement. It is generated;—for this universe is palpable, and has a body; and all such things are perceptible (*i. e.* are to be apprehended by the senses); and things perceptible being apprehended by opinion, in conjunction with perception, appear to be in a state of becoming, and subject to generation. Again, with reference to what exists, it must necessarily have arisen from some cause.

To discover then the *Creator* and *Father* of this universe, as well as his work, is indeed difficult; and when discovered, it is impossible to reveal him to mankind at large. And this too, we must consider respecting him, according to which of two patterns he modelled the world; whether with reference to one subsisting ever in a state of sameness and similarly affected, or with reference to one that is only generated. If this world then is beautiful and its artificer good, he evi-

* The terms *ταὐτόν—θάτερον*, *ὅμοιον—ἀνόμοιον*, so constantly met with in this dialogue, express *eternal constancy*, as contrasted with *mutability*; and they are found among the ten pairs of opposites which, according to the Pythagoreans, constituted the *elements* of the universe.

dently looked to an eternal pattern; but if it be without beauty, and what it is not lawful to mention, he must have looked to one that is generated. It is evident, however, to every one that he looked to one that was eternal;—for the universe is the most beautiful of generated things, and its artificer the best of causes. Being thus generated, then, it has been framed according to principles that can be comprehended by reason and reflection, and ever abides in sameness of being. This, then, being the case, this world must necessarily be the resemblance of something;—although to describe its origin according to nature is the greatest of all undertakings. We should distinguish between an image and its pattern; just as words are connected with the things of which they are the interpreters:—and so when we speak of that which is stable and firm, and mentally intelligible, our language should be in like manner stable and immutable, and as far as possible unrefutable and immovable, having in this respect no deficiency; whereas, in speaking concerning its image only, and as compared to it, we should use probable arguments, that are in strict analogy thereto. Moreover, precisely as essence (or true being) is to generation, so is truth to faith (or mere conjecture). You must not wonder, then, O Socrates, since different people differ so much in opinion about the gods and the formation of the universe, if I should be unable to put forth generally approved and scrupulously exact statements on so difficult a subject; but even if we should only advance reasons not less probable than those of others, you should still be content, remembering that both I who am speaking, and you who are my judges, possess a common human nature; and you must be satisfied therefore, if my assertions are but probable statements, and should inquire no farther.

Soc. Capitally well said, Timæus; and we must proceed wholly as you recommend. As regards the prelude then of your discourse, we wonderfully approve of it: and now proceed to the strain (or main subject) itself.

X.—Tim. Let us declare then on what account the framing Artificer settled the formation of this universe.* He was good; and in the good, envy is never engendered about anything whatever. Hence, being free from this (envy), he

* Gr. γένεσιν καὶ τὸ πᾶν τόδε.

desired that all things should as much as possible resemble himself. Any one, therefore, who receives this as the leading principle of generation and the universe from intelligent men, will receive it most correctly. For as the deity desired, as far as possible, that all things should be good, and nothing evil,—he accordingly took everything that was visible and not in a state of rest, but in excessive agitation and disorder, and then reduced it from disorder into order, conceiving the latter to be far better than the former. It is not, indeed, and never was, lawful to do anything else but what is most honourable; and accordingly, he found by reasoning that of things naturally visible, nothing without intelligence could be more beautiful than what is wholly endowed with intellect, and besides this, that apart from the soul no one could possess intelligence.* In pursuance of this reasoning, placing intellect in soul and soul in body, he constructed the universe; that thus it might be a work naturally the most beautiful and the best. Hence, therefore, we have a reasonable motive for calling the world an animal with a soul, truly intellectual, and created through the providence of the deity.

XI.—This being the case, let us next consider, in the likeness of what animals the composing artificer framed the universe. We must by no means then think, that he would deign to fashion it like animals subsisting as a part of anything (*i. e.* in an incomplete form): for nothing resembling an imperfect animal can possibly be beautiful. But we may consider it on the other hand, as most nearly of all resembling what contains the other animals both separately and collectively as parts [of a whole:]—for it (the universe) comprises within itself all intelligible animals, just as this world contains us and all other visible creatures.† The deity, in-

* Plato seems, therefore, to regard the soul (*ψυχή*) as an intermediate agent and uniting bond between perishable bodies and the eternal and indestructible intellect, powerfully acting on matter; but yet, on the other hand, closely and necessarily connected with intellect; though not like the latter, naturally eternal and indestructible, but the best of things generated and constituted eternal by the divine decrees.

† Gr. *οὗ δ' ἔστι τἆλλα ζῶα καθ' ἓν καὶ κατὰ γένη μόρια, τούτῳ πάντων ὁμοιότατον αὐτὸν εἶναι τιθῶμεν.* The meaning is somewhat obscure: the above is Stallbaum's interpretation. Compare also, ch. xv. at the beginning. It may be observed, as regards intelligible and sensible

deed, desirous of making it in all respects resemble the most beautiful and entirely perfect of intelligible objects, formed it into *one* visible animal, *containing within itself all the other* animals with which it is naturally allied. Are we not, then, right in concluding that there is but one heaven (or universe); or is it more correct to assert that there are many and infinite? One only, [I answer,] if it has been fabricated according to the original pattern. For that which comprehends all intelligible animals whatever, can never be second to any other:—for there would be need of another animal again to comprise these two, of which they would both be parts; and it would be more proper to assert that the universe resembles this comprehending third, rather than the other two. In order, therefore, that the world may in its substantive existence [*κατὰ τὴν μόνωσιν*] resemble the all-perfect animal—on this account the framer of the worlds produced neither two nor an infinite number; but this, the solely-begotten heaven (or universe) having been generated, now exists and ever will exist.

Now, whatever has been generated, must necessarily have bodily shape, and be visible as well as tangible. But nothing can be visible without the aid of fire, and nothing tangible without something solid, and nothing solid without earth,—owing to which, the deity at the beginning of his constructive labour composed the body of the universe from fire and earth. But it is not possible for two things alone to cohere, without the intervention of a third; for a certain bond is necessary between the two. And the best of all bonds is that, which, as nearly as possible, unites into one both itself and the natures bound with it. But proportion will naturally best show this effect;*—for whenever, either in three numbers, or solids, or powers, the middle bears the same ratio to the last, as the first to the middle—and again also, as the last is to the middle, so is the middle to the first; then the middle (or mean) term becoming both first and last, and the last and first again each

objects, that Empedocles had laid down that the universe is *νοητός*,—although the *παράδειγμα ἀρχέτυπον κόσμου αἰσθητοῦ*.

* So we have ventured to render,—*τοῦτο δὲ πέφυκεν ἀναλογία κάλλιστα ἀποτελεῖν*. On the whole subject, see Stallbaum's long and satisfactory note.

become means, they must thus all necessarily become the same relatively to each other, and having become the same with each other, will all be one. If then the body of the universe had been a superficies only without thickness, one medium alone would have sufficed, both for binding it and all that belongs to it;—but in the present case, as it was doomed to be a solid—and solids are never one only, but always jointed together by two media,—whence the deity placed water and air between fire and earth;—and by thus placing them as far as possible in proportion to each other, so that fire should be to air as air to water, and as air to water so water to earth,—he thus bound and framed together the world visible and tangible. On this account also, and from such elements, which are four in number, the body of the universe was confessedly generated by a certain proportion; and hence has resulted such an intimacy, that all its parts aptly cohere, and are indissoluble except by its uniting artificer.

Of these four elements, then, the composition of the world received one *whole* of each :*—for its composing artificer constituted it from entire elements of fire, water, air, and earth; leaving no part of any one of them, nor any extraneous power, —considering that it would thus be a whole animal, in the highest degree perfect and of perfect parts; and besides this, that it would be one, as nothing would be left, from which any other such element could be produced; and lastly, that it would be free from old age and disease,—and perceiving also that the principles composing bodies, as heat and cold, and all possess vigorous powers, when they surround bodies externally and interefere with them unseasonably, dissolve their union, and bring on diseases and old age, whereby they decay and perish. Owing to such causes and reasonings, then, he framed this universe, as one whole, an united series of perfect wholes, perfect, undecaying, and without disease. He gave it also a figure becoming and allied to its nature;—and to the animal destined to comprehend all others within itself, that figure as the most becoming, which includes within itself every sort of figure whatever. Hence he fashioned it in the shape of a sphere, perfectly round, having its centre

* Gr. ἓν ὅλον ἑκάστου,—one whole, without deficiency or superfluity, —the τὸ τέλειον, alluded to by Aristotle, Metaph. iv. § 16.

everywhere equally distant from the bounding extremities, as being the most perfect of all figures, and most resembling himself; — and he did this, considering the similar to be infinitely more beautiful than the dissimilar.

Next, he most carefully polished the external circumference of this sphere, — and this for many reasons. It needed, indeed, neither eyes, nor ears, as there was nothing externally either visible or audible:—neither was it surrounded with air, as if it required respiration;—nor, again, did it require any organ, through which it might receive its nutriment, and discharge it again when digested: for nothing was either added to or taken from it, that being impossible. Indeed the universe is artfully made to provide itself with nutriment through its own decay, as well as to suffer and do all things in itself, and by its own operations;—because, indeed, its creator conceived that it would be much more excellent, if independent in action, than if it required extraneous aid. And he did not think fit to give it hands either, as it had nothing either to receive or reject; nor yet of feet, or any other members suited to locomotion:—for he assigned to it a motion peculiar to itself, being that of all the seven kinds of motion,* which chiefly belongs to intellect and reflection. Hence, making the world to turn constantly on itself and on the same point, he gave it a circular motion, and took from it all the other six, without giving it any power of progression: and as this revolution required no feet, he created the world without legs and feet.

XII.—Thus was it, that the intelligence of the eternal Deity, after due reflection, conceived the form of the god about to come into existence; and he made it smooth, equable, and even from its centre in every direction,—a body whole and perfect, wholly composed out of perfect bodies. As for the soul, he fixed it in the middle, extended it throughout the whole, and likewise surrounded with it its entire surface:—and so, causing a circle to revolve in a circle, he established the world as one substantive, solitary object, self-sufficient through its own excellence, requiring nothing external, but sufficiently known and friendly to itself. By this procedure, then, he produced the Universe, a blessed god. The Deity, however,

* On these seven kinds of motions, comp. ch. xviii. of this dialogue, p. 348.

did not, as we now undertake to say, form the soul posterior and junior to the body: for he who conjoined these, would never have allowed the more ancient natnre to be governed by the younger:—and yet we, who are exposed to the blind chances of fortune, are apt to speak somehow in this silly fashion; whereas the Deity constituted the soul both in age and excellence prior to and older than the body, as being the proper mistress and ruler of its subject [the body;] and that, too, from the following sources, and in the following manner.

From one essence indivisible, and always the same, and from another again that is divisible and corporeal, he composed—by admixture from both—a third form of *essence* intermediate between the two; and again, between what is indivisible and divisible as respects bodies, he placed the nature of *same* and *different* (or mntable);—and taking these three, he mingled them all into one idea, joining them together by force, as the *different* would not freely mingle with the *same*. And after mingling them with *essence*, and producing one from the three, he again distributed this whole into suitable parts; each composed of a mixture of *same*, *different*, and *essence*. He next began to divide as follows:—In the first place, he took away one part from the whole; then he separated a second part, double of the first: and again, a third, one-and-a-half times as much as the second, but triple of the first; then a fourth, double of the second; in the next place a fifth, triple of the third: a sixth, octuple of the first: and lastly a seventh, twenty-seven times greater than the first. After this, he filled np the double and triple intervals, still taking off parts therefrom, and so placed them between the intervals, that there might be two media between every interval; one of which might, in the same degree, exceed one of the extremes, and be exceeded by the other, while the other part might in an equal degree exceed one of the extremes, and be exceeded by the other. But as by the intermediate links between the above-mentioned spaces the sesquialter, sesqnitertian, and sesquioctave intervals were produced, he filled with a sesquioctave all the sesquitertian intervals,* leaving a part of each, the interval between which

* Gr. *ἡμιολίων δὲ διαστασέων καὶ ἐπιτρίτων καὶ ἐπογδόων γενομένων ἐκ τούτων τῶν δεσμῶν ἐν ταῖς πρόσθε διαστάσεσι, τῷ τοῦ ἐπογ-*

and the following would have to each other the same ratio as the numbers 256 and 243; and in truth he thus exhausted the whole mixture—from which these were separated. He split the whole of this composition, then, along its entire length into two parts, joining them mutually across like the letter X, afterwards bending them into a circle, and connecting them both with themselves and each other, in such a way that their extremities might meet directly opposite the point of their mutual intersection, externally comprehending them in an uniform motion around the same centre; besides which, he made one of the circles external, the other internal.* The motion of the exterior circle he proclaimed to be that of sameness, and that of the interior the motion of difference. He caused also the circle of sameness to revolve laterally towards the right, and that of difference diagonally towards the left. And the superiority he gave to the circulation of same and similar; for this alone he suffered to remain undivided;—while, as to that within, after dividing into six parts, and forming therefrom seven unequal circles, divided by double and triple intervals, three of each, he bade these circles travel in contrary directions to each other,—three of the seven to revolve at equal velocities, the remaining four with a velocity unequal as respects either of the former three, yet in a certain proportion as to their respective periods.

XIII.—After, therefore, the whole composition of the [universal] soul had been completed according to the intention of God who framed it, he in the next place formed within it the whole of a corporeal nature; and he aptly jointed them, by uniting centre to centre. The former (the soul), being interwoven throughout from the middle to the very extremities of space, and covering it even all around exter-

δόου διαστήματι τὰ ἐπίτριτα πάντα ξυνεπληροῦντο, &c. The whole paragraph is very difficult, owing to the very scanty records left us respecting the nature of the ancient Harmonics.

* The whole of this Pythagorean-like speculation on Harmonics has been variously explained by Cousin, Stallbaum, and Martin (as well as Böckh, in many of his learned tracts). It may here simply be observed, that the two harmonic scales, thus split down their length and crossed, formed two circles or orbits, one (θάτερον) revolving within the other (ταὐτόν), but in an opposite direction. These, according to many commentators, correspond with the equatorial and zodiacal circles (?).

nally, though at the same time herself revolving within herself, originated the divine commencement of an unceasing and wise life throughout all time. And indeed the body of the universe was generated in visible shape; while the soul, though invisible, was made to partake of reason and harmony, and rendered the best of created things by Him—the best of eternal intelligences. The soul, then, being composed from the admixture of the three parts, same, different, and essence, classified as well as bound together in certain proportions, and itself revolving inwardly on itself, whenever it comes in contact either with anything mutable or indivisible, at once declares by its intrinsic energy with what anything is identical, and from what it differs, and also with reference to what, where, how, and when it happens, both as regards its own separate essence and its external affections, either in things generated, or such as possess an eternal sameness.* When our talk, then, is about truth, and consistent with itself,—whether, on the one hand, it be about things mutable or things constant, and is silently and noiselessly borne onward by its own motion, or when it is concerned about things sensible, and the circle of difference reports on its onward passage to every part of the soul, then arise fixed and true opinions and persuasions:—but when, on the other hand, it is concerned about the merely rational, and the glibly-whirling circle of sameness makes its indications,—then intellect and science are thus necessarily brought to full perfection. And as respects the real essence in which these two qualities are engendered, if any one asserts that it is any other than the soul, he will assert everything rather than the truth.

XIV.—When the parent Creator perceived that this created image of the eternal gods had life and motion, he was delighted with his work, and by this very delight he was led to consider how he might make it still more to resemble its exemplar. Hence, as the *intelligible* universe was an eternal

* Gr. *καὶ ὁπότε συμβαίνει κατὰ τὰ γιγνόμενα τε πρὸς ἕκαστον ἕκαστα εἶναι καὶ πάσχειν καὶ πρὸς τὰ κατὰ ταὐτὰ ἔχοντα ἀεί.* The whole sentence is difficult,—not so much from its obscureness, as its pregnancy of meaning, which all but defies translation. The same remark applies to the phrase—*λόγος ὁ κατὰ ταὐτὸν ἀληθὴς γιγνόμενος*—in the succeeding sentence. See Stallbaum and Martin *ad locum.*

animal, he tried to make this [the *sensible* universe], as far as he could, similarly perfect. The nature indeed of the animal itself was eternal, and this nature could not be entirely adopted into any thing subject to generation;—hence God resolved to form a certain moveable image of eternity; and thus, while he was disposing the parts of the universe, he, out of that eternity which rests in unity, formed an eternal image on the principle of numbers;—and to this we give the appellation of *Time*. But besides this, he contrived the days and nights, months and years, which had no existence prior to the universe, but rose into being contemporaneously with its formation. All these are but the parts of time; and the terms *it was* and *it will be* are generated [*i. e.*, varying and evanescent] forms of time, which we have wrongly and unawares transferred to an eternal essence. For we say that a thing was, is, and will be; while according to truth, the term *it is*, is alone suitable,—*was* and *will be* being expressions only suitable to generation, which proceeds through time, — both of them being certain motions:—whereas, what exists eternally, the same and immoveable, neither becomes at any time older or younger; neither has it been generated in the past, nor will be in the future, nor is it subject to those accidents which generation imposes on sensible objects,—all of which are nothing more than forms of time imitating eternity, and moving in a circle measured by number. And besides this, in making such assertions as these,—that what has been generated is generated,—that what is becoming, is in generation,—that what will be is to be,—and that non-being is not;—in all this we state what is not accurately true. But this is perhaps not the place for a minute discussion of these matters.

Time, then, was generated with the universe, in order that, being produced together, they might together be dissolved, if their dissolution should ever happen:—and it was formed on the model of an eternal nature, that it might as far as possible resemble it; for this model exists through all eternity, while the world, on the other hand, has been generated, now exists, and will exist, throughout all time. With this design, then, and after such reflection on the generation of time, the Deity, in order that it might be produced in full operation, created the sun, moon, and the five other stars, which are denominated

planets, to distinguish and guard over the numbers of time. And as soon as he had produced the bodies of these stars, God placed them, seven in number, in the seven orbits whose revolutions are according to difference;*—the Moon, indeed, in the first orbit nearest about the earth; the Sun in the second beyond the earth; then Lucifer (*i. e.* Venus), and the star sacred to Hermes (*i. e.* Mercury), revolving in their orbits as swiftly as the sun, but on a different principle of motion, owing to which these stars, the Sun, Lucifer, and Mercury, mutually overtake and are overtaken by each other in their respective courses. As respects the other stars, however, the labour of investigating their revolutions, and the causes that gave them origin, would surpass that of the discourse itself which caused their mention. These subjects, then, may hereafter, perhaps, when we have leisure, meet with the investigation they deserve.

When, therefore, each of the stars necessary for the constitution of time had obtained a motion adapted to its condition, and their bodies, bound by living chains, had become vital beings and learned their prescribed duty, they pursued their course according to the movement of difference, passing obliquely through the orbit of sameness, to which the former is subordinate, one circle being larger and the other smaller, one moving quicker and the other more slowly; those that revolved the quickest on the principle of sameness appearing ever to overtake and be overtaken by those that travelled at slower velocities. And the revolutions of all these circles in their orbits with a spiral motion,† proceeding at one and the same time in two contrary directions, make it appear that the one moving at the slowest pace from that which was the most swift is the nearest of all. And in order that there might be a certain apparent measure of slowness and swiftness in the relative velocities of these spheres, and an evident uniformity in all the eight movements, the Deity enkindled a light, which we now denominate the sun, in the second of these orbits, in order that it might fully display all things in the universe, and that such animals as required it might have their share in number,‡ becoming acquainted therewith from

* Gr. *ἔθηκεν εἰς τὰς περιφοράς, ἃς ἡ θατέρου περίοδος ἦειν*, &c.

† Gr. *πάντας γὰρ τοὺς κύκλους αὐτῶν στρέφουσα ἕλικα.* On this construction, see Matth. Gr. Gr. § 408.

‡ The sun, he means, was provided with light that those animals, that

the revolution of sameness and similarity. Thus, then, and on these accounts, arose night and day; being the period of the one and most skilfully-contrived movement.* The month, too, was generated, when the moon had run through her orbit, and passed into conjunction with the sun,—and the year, when the sun had completely travelled through his own orbit. As to the periods of the other stars, however, they are not understood, except by a very few; nor are they distinguished by any peculiar name or relatively measured on the principle of numbers:—and hence it may be said, they are ignorant that these movements really constitute time, infinite as they are in number and of wonderful variety. Still it is by no means impossible to conceive, how the perfect number of time completes a perfect year, when the courses of the eight orbits return at their completion to the same place of commencement, and have their revolution measured on the principle of sameness. In this manner, indeed, and for this purpose, were formed such of the stars as moved circularly through the universe,—that this (the visible animal, *i. e.* the universe) might resemble as nearly as possible the most perfect intelligible animal, in the imitation of an eternal nature.

XV.—The Creator constructed all the rest at the same time as the generation of time,† according to the similitude of that which has been portrayed; but still, as the universe did not yet comprise within it the entire animal race, in this respect there was a dissimilarity. This defect, therefore, [the Creator] supplied by impressing it with forms corresponding with the nature of its pattern. Wherever, therefore, the intellect beholds ideas of a certain quality, and quantity in that which possesses life, such and so many he conceived that this (the universe) should contain; and these are four:—One, the heavenly race of gods; another, winged and air-wandering race; a third, that which dwells in the water; and a fourth, that which has feet and walks on the ground. The chief idea, indeed, of deity, he formed from fire, that

required it, might gain a knowledge of number, *i. e.* of the principle on which the world is formed and now moves.

* In the Timæus Locrus it is said (p. 432 of Stallbaum, vol. vii.), that it is day, when the sun travels from east to west, and night when it travels from west to east;—and Plato must necessarily have thought this, as he held the earth to be immoveable, without any motion even round its own axis. Comp. Aristot. de Cœlo, II. ch. 13.

† Gr. *τὰ μὲν ἄλλα ἤδη μέχοι χρόνου γενέσεως*. The old edd. read *εἴδη*.

it might be as far as possible splendid and fair to behold; and in adapting it to the universe, he rendered it circular; made it to consist in the knowledge of that good which it is to follow, and distributed it round the entire heavens, that it might be a true world, fully adorned with that race in its every part. To each of the divine bodies, also, he adapted two motions;—one of them taking place on the same spot and on the principle of sameness, corresponding with that intelligence which contemplates what is the same with itself; the other, a progressive motion subordinate to the motion, that is constantly the same and similar:*—but as respects the other five motions, it was fixed immoveable, that each of them might become as far as possible the best. And for this reason also the fixed stars were formed, as being divine and eternal animals, ever abiding and revolving in the same place and on the principle of sameness; and the stars, which both revolve and have the kind of motion above described, were formed on those principles.† Next, he formed the earth our common nourisher, which, being confined round the axis that extends through the universe, is the guardian and artificer of night and day, as well as the first and most ancient of the gods that have been generated within the universe. With respect, however, to the dances [or rhythmical motions] of these divinities, and the mutual intersection of their circles, as well as their relative revolutions and progressive motions in their conjunctions and oppositions, whether in progressive or retrograde motion, at what times and in what manner they are in turn eclipsed, and afterwards reappear to our view, causing terror and presaging future events to such as are able to understand them;—to attempt an explanation of all this, without having a plan of them before us, would be a labour in vain. But of this enough; and this is all that we shall say concerning the nature of the visible and generated gods.

XVI.—Again, to speak concerning the other gods (or

* Plato is here describing two motions of the universe,—one on the principle of *ταὐτόν* (which is that of intelligence) round its own axis, the other on that of *θάτερον* (that which the soul of the world is formed), progressive, the latter of which—viz. sensible creation, is wholly subordinate to the former.

† Gr. *τὰ δὲ τρεπόμενα καὶ πλάνην τοιαύτην ἴσχοντα——κατ' ἐκεῖνα γέγονε.*

dæmons), and to know their generation, is more than we can perform; and we must trust to the reports of those ancient men, who being, as they said, the descendants of the gods, must have a clear knowledge of their parents. It is impossible, therefore, to discredit the children of the gods; and even though they should speak without probable and cogent proofs, yet as they declare that they are relating matters with which they are familiarly acquainted, we ought, in compliance with the law, to assent to their tradition. In this manner, then, according to them, the generation of these gods took place, and is described.

Ocean and Tethys were the progeny of Heaven and Earth; and from these sprang Phorcys, Kronos, and Rhea, and ever so many more with them;—and from Kronos and Rhea sprang Zeus, Hera (Jupiter, Juno), and all that we know are called their brethren, together with others still who were their progeny.* When therefore all such gods as visibly revolve, and show themselves when they please, were generated, the Artificer of the universe thus addressed them: "Gods of gods, of whom I am the creator and father, all things formed by me are by my will indissoluble. Indeed, what is bound is of course dissoluble; nevertheless, to desire to dissolve what is beautifully harmonized and well disposed, is the mark of an evil nature. Now, inasmuch as you have been generated, you are hence not immortal, nor wholly indissoluble; yet you shall never be dissolved, nor become subject to the fatality of death; because you have got my will [that it shall be so,] which is a much greater and more powerful bond than those by which you were bound when first created. Learn, therefore, what I now say to you by way of information. Three classes of mortals yet remain uncreated. Unless these be created, then, the universe will be imperfect; for it will not contain within it every kind of animal, though it ought, in order to be quite perfect. Yet if these are generated, and partake of life through me, they will become equal to the gods. In order, then, that mortal natures may subsist, and the universe may be truly all, turn yourselves, according

* A comparison of this statement with Hesiod's will show that Plato was not much governed by the poet's authority. Comp. Theog. v. 132—156; 336—350; 453—460. Plato probably took his notion, as Proclus suggests, from the Orphic hymns.

to your nature, to the formation of animals, imitating the power which I employed in the creation of yourselves. And so far as any part of these is suited to have the same name as immortals to be called divine, and destined to take the lead among those who willingly pursue justice, and reverence you —of these I myself will deliver the seeds and beginnings; and for the rest do you weave together the mortal and immortal nature, constructing and generating animals, and promote their growth too by supplying them with food, and receive them back again [into your bosom] when fallen to decay."*

XVII.—Thus spoke the Creator; and again into the same bowl, in which he had by mingling tempered the soul of the universe, he poured into it likewise what was left of the former mixture, somewhat indeed after the same manner, yet not equally pure as at first, but less so by two or three degrees. And after having thus framed the universe, he allotted to it souls equal in number to the stars, inserting each in each; and then, as it were, placing them on a vehicle [whereon to travel through the heavens,] he pointed out the nature of the universe, and announced to them the laws of fate; showing them that the first generation would be allotted in common to all, so that no particular soul should have less than its due portion, and that after they had been distributed through the several instruments of time adapted to each,† there would then be produced that animal which is of all the most suited for religious worship; and as human nature was of two kinds, [male and female,] he showed them that the more excellent was that which would afterwards be called *man*. As souls, therefore, are from necessity engrafted in bodies that are constantly gaining and losing their composing particles, he declared to them that in the first place all persons must necessarily have one connate [*ξύμφυτον*] sense produced by violent emotions,—secondly, love mingled with pleasure and pain; and besides these, fear and anger, together with all their consequences and natural opposites; and that such as subdued these would live justly, those overcome by them unjustly. And he declared also, that after living well for the time appointed to

* On this speech we must refer the reader to Stallbaum's long and valuable notes.

† Gr. *εἰς τὰ προσήκοντα ἑκάστοις ἕκαστα ὄργανα χρόνων.*

him, each one should once more return to the habitation of his associate star, and spend a blessed and suitable existence; but failing in these points, he should be changed in his second generation into the nature of a woman; and should he not cease from evil even under these circumstances, whatever the shape his wickedness had taken, so also the soul should be changed into the nature of some brute corresponding thereto, and when changed never cease from labour, until, following the revolution of sameness and difference peculiar to itself, and having overcome by reason its turbulent and irrational part, which is a mass, as it were, composed of fire, water, air, and earth, it should at length return to the first and best disposition of its nature.*

Having thus legislated for souls in all these particulars, in order that he might be in no respect the cause of the future wickedness of each, he planted some of them on the earth, others in the moon, and others in the remaining different instruments of time; and after this planting, he charged the junior gods with the duty of constructing mortal bodies, as well as everything additional that was required for the human soul, giving them dominion also over these and all things consequent thereon, and bidding them rule over the mortal creature as nobly and honourably as they could, that it might not become the cause of evil to itself.

XVIII.—The Creator, after arranging all these particulars, then retired to his accustomed repose; and while he thus abode, his children forthwith obeyed their father's order, and, taking the immortal principle of a mortal animal, they, in imitation of their own creator, borrowed† from the world portions of fire and earth, water and air, as things which they should one day restore; and firmly united them together, not with the same indissoluble bonds by which they themselves were held together, but fixing them with thickly-set nails, invisible through their smallness, constructing from these different

* This is a clear indication of the philosopher's belief in the transmigration of souls;—and the same notion is developed towards the close of the dialogue. Some, however, suppose that they are the opinions of Timæus, not Plato. How can we separate them?

† Gr. *δανειζόμενοι*, &c., borrowing certain particles, which were to be paid back as a debt at some future time, namely, at the dissolution of the mortal body.

elements each particular body, and placing the revolutions of the immortal soul in a body subject both to renewal and decay. These, however,—merged, as it were, in a deep river,—had no power of governing themselves, but violently hurried forward both themselves and others, so that the whole animal was moved—confusedly however, just as chance carried it forward, and without any reason, according to the whole six kinds of motion—backwards and forwards, to the right and left, upwards and downwards, and so on, according to the six differences of place. And great as was the advancing and retiring wave which furnished nutrition, yet it was still more agitated by the impulses which it received from without, when the body came into collision with external and foreign fire, or the solidity of earth, liquid waterfalls, or whirling blasts of air; from all which the various movements fell through the body on to the soul; which on this account were afterwards, and are still, called perceptions [*i. e.* general sensations]. And these, moreover, instantly giving rise to an exceedingly great and powerful motion, by moving with that constantly flowing stream, and vehemently disturbing the revolutions of the soul; wholly stopped the revolution according to sameness by their contrary current, hindering it either from commencing or continuing its course;*—and even the movement according to difference they so far disturbed, as to turn from their circular orbits and throw into all possible disorder the three intervals of double and triple, together with the mean terms and conjoining links of the sesquitertian, sesquialter, and sesquioctave ratios, which cannot be dissolved by any one but the artificer by whom they were bound;†—and thus, though scarcely connected with each other, they are borne along, though quite in disorder,—at one time straight forwards, at another obliquely, and then again upside down, just as if

* The general meaning of this rather involved sentence is,—that as well by the natural bodily change as by the perceptions of the senses, a disturbance is caused in the equable and constant agitation or operation both of the intelligent and sensuous part of the soul.

† This celebrated passage most plainly shows what Plato meant by the harmonic and arithmetic ratios concerned in forming the universe,—viz. that they indicated a certain harmony and equability of the intellectual powers, clearly perceptible in their agitation and movements, so long as the power of body and sense is not such as to destroy and impair them: —but this of course must be the result of an union of body and soul.

one were to fix his head on the earth and raise his feet on high, in which case, both to the inverted person and the spectators, the parts on the right would seem to be on the left, and the left on the right. These circles likewise greatly disturbed in these and similar ways, when they fall in externally with either sameness or difference, and call objects either same or different, contrary to truth, become false and unreasonable; nor is there any revolution among them which has a controlling and directing power;—and if, again, any of the external sensations are hurried forward and join in doing violence to the soul's whole receptacle, they then seem to prevail, though in reality they are still in subjection.

And it is owing to all these affections, that even now as in the beginning, the soul, when first united to a mortal body, is without intelligence; but when the stream of growth and nutrition flows along with diminished speed, the circles of the soul, restored to tranquillity, proceed in their proper path, gaining steadiness as time goes on, and then the orbits of the circles are regulated in their course agreeably to those that travel according to nature; and they call both same and different by their proper appellations, assigning wisdom to the person by whom they are possessed. If any one, therefore, receives both proper food and education, he must become perfectly sound and healthy, escaping every important disease; whereas he who neglects his soul will pass lamely through life's existence, and again pass into Hades aimless and unserviceable.* Of these matters, however, more hereafter. It is our business at present to treat more accurately of what we before proposed,—namely, the generation of body in connexion with soul, and owing to what causes and divine foresight it has taken place, resting for our proofs chiefly on the argument of analogy.

XIX.—First, then, the gods, in imitation of the spherical shape of the universe, bound the two divine circles of the soul in a spherical body,—that, namely, which we now call the head, which is man's most divine member, and the ruler of our whole composition. And to this the gods who framed it gave the whole body for its service, conceiving that it would thus partake of every possible motion; and moreover,

* Gr. *ἀτελῆς καὶ ἀνόητος*. Stephens proposed *ἀνόητος* on the authority of some MSS.:—but no change is needed.

lest the head, in rolling over the various elevations and depressions, should be unable to overcome the heights, or get out of the cavities, the gods gave it the body to be its locomotive vehicle. Hence the body was endued with length, and furnished by Divine contrivance with four members, naturally capable of extension and flexion, to enable it to seize objects, to give it a stable support, and to allow it to pass from place to place; and above this body was placed the head, the abode of our most divine and sacred portion. This was why we were furnished with legs and hands;—and as the gods considered that the fore parts are more honourable and fitter to rule than those behind, they gave us a motion chiefly progressive.* Beside this, it was requisite, that man's front should be distinct and dissimilarly formed from the other side; and on this account they first placed about the vessel of the head a face provided with organs to express all the energies of the soul, and assigned to this anterior part the natural government of man. And of these organs, the first that they constructed were the light-bearing eyes, fixing them in from some such cause as the following: The body of these eyes they formed to consist of fire, not enough indeed to burn, but to give a gentle light suitable to each day; for the pure fire contained within us and related to it, they caused to flow smoothly through the eyes, and in dense quantities throughout, but condensing it more especially in the middle of the eyes, so as to conceal all the grosser part within, and allow the pure only to filter through. When, therefore, the light of day surrounds the stream of vision, then, by the mutual falling of similar bodies on each other, one well-adapted body is constituted, according to the direction of the eyes, wherever the light proceeding from within resists that which falls on it from without. But the whole becoming similarly affected through similitude, when it either touches anything else or is itself touched by another, then the motion thus produced, diffusing itself through the whole body even as far as the soul, causes that sensation which we denominate sight. But when this kindred fire [within us] departs into night, the sight is cut off; for in this case, by proceeding into a dissimilar nature, it becomes estranged, and is extinguished: since it has no longer any relation to the

* *ταύτῃ τὸ πολὺ τῆς πορείας ἡμῖν ἕδοσαν.*

proximate surrounding air, which is naturally destitute of fire. Hence it ceases from seeing, and besides this, becomes the introducer of sleep; for the gods constructed the eyelids to be a preservative of the sight, and thus by their compression restrain the power of its inward fire, and besides that, scatter and smooth over its internal motions; and when they are thus calmed, rest ensues; which rest, when profound, produces a sleep attended with few dreams;—but on the other hand, if certain unusually vehement motions remain, then, according to their nature and the places in which they occur, they will engender corresponding phantasms within, which will come to our recollection as soon as we wake. With respect, also, to the formation of images on mirrors, and all lucid, smooth surfaces, there is nothing in these difficult of solution; for all such phenomena necessarily result from the mutual affinity of the external and internal fire, and again from one in particular that subsists about smooth bodies individually, and is many times reflected, because the fire around the face gradually becomes united on the smooth and shining surface with the fire coming from the eyes. The parts on the right, too, appear to be on the left, because there is a mutual contact of the contrary parts of the sight with the contrary parts of the object, different from their accustomed mode of approach. On the contrary, the parts on the right appear on the right, and the left on the left, when there is a reflexion of the light composed of the mingled fires, both exterior and interior; and secondly, the smoothness of the mirrors, which are convex, reflect that which is to the right on the left, and the left to the right. But if the mirror be concave, it presents an image wholly inverted, by sending the lower part of the image upwards, and again the upper part downwards.* All these phenomena, therefore, are only some of the concurring causes† which the divinity brings to his aid in rendering the idea of that which is best as far as possible complete,—whereas the multitude are of opinion that these

* This is a very obscure passage, but much light has been thrown upon it by Prof. T. H. Martin (*Etudes sur le Timée*, 2 vols. Paris, 1841), who conceives that Plato is here referring to convex and concave mirrors. Considerable light is thrown also on the meaning of the Greek words by a passage in Euclid's Optics, p. 393.

† Gr. *τῶν ξυναιτίων*.

are not the concurring but the real causes of all things,—such, namely, as those producing cold and heat, freezing and thawing, and such like, but which are wholly incapable of exercising reason and intellect; for the soul may be said to be the only one of all beings that can acquire intellect; and this is invisible, whereas fire and water, air and earth, are all visible bodies. As for the lover of intellect and science, however, he should explore the first causes of intellectual nature, and consider, respecting second causes, how many arise from the motion of other bodies, and yet necessarily give motion again to others. This, then, is what we ought to do: we should speak concerning both kinds of causes, but separately of such as engage the intellect in forming things fair and good; and of such, also, as, abandoning wisdom, produce the things they form just as it may chance, and without any regard to order.

XX.—Respecting the second causes of the eyes,* therefore, so far as they possess the power which falls to their lot, let what has been already said suffice; and we will next speak of their greatest and most useful employment, for which, indeed, they were expressly bestowed on us by the Deity. The sight, indeed, is in my opinion the cause of the greatest benefit to man,—since even in our present discussion about the universe, not one argument could ever have been adduced without surveying the stars, the sun, and the heavens. Now, however, both day and night, months and periods of years, have been seen and arithmetically calculated; and they give us a conception of time, and means of investigating the nature of the universe; from all which we have gained that kind of learning termed philosophy, a better gift than which never was nor ever will be conferred by the gods on our mortal race. This, then, is what I call the greatest benefit of the eyes; and as for the others that are of less consequence, why should I celebrate them, to make those who are blind and unphilosophic mourn and regret them in vain? This, however, we may assert, that God invented and bestowed sight on us for this express purpose, that on surveying the circles of intelligence in the heavens, we might properly employ those of our own minds, which, though disturbed when compared with the others that are uniform, are still allied to their circula-

* Gr. *τὰ μὲν οὖν τῶν ὀμμάτων ξυμμεταίτια.*

tions; and that having thus learned and being naturally possessed of a correct reasoning faculty, we might by imitating the uniform revolutions of divinity set right our own silly wanderings and blunders.

As respects voice and hearing, we may say again, that they were bestowed on us by the gods for the same objects and on the same account; for speech was ordained for the very same purpose as the sight, which it greatly aids in its office;—and it is with a view also to harmony that the hearing has an aptitude for musical sounds. That harmony, moreover, which consists in motions analogous to the revolutions of our soul, does not seem advantageous to him who wisely devotes himself to the Muses* on the mere ground of its being pleasurable without reason, as it seems at present; but it was given us by the Muses to aid us in reducing the disturbed circulation of our soul to mutual order and accordance;—and again, they gave us rhythm for the same purpose, as the means of reforming the irregular and ungracious habits that prevail in the majority of our race.

XXI.—Thus far, with only a few exceptions, our past remarks have had reference to the creations of intellect; and we ought to speak likewise of things that come of necessity; for the generation of this world results wholly from the co-operation of intellect and necessity. Intellect, indeed, ruling over necessity, persuaded it to bring to the highest perfection the majority of created things; and in this way, by the persuasive power of wisdom over necessity, this universe was first created. Now, correctly to explain in what way it was created, we must refer in our explanation to the form of a variable cause,† as the nature of the case requires. Let us then recall our steps, and take up the subject afresh, going back to first principles, as we did before. Let us investigate then the nature and affections of fire and water, air and earth, prior to the generation of the heavens; for up to the present time no one has yet unfolded their generation:—and yet we speak of fire and other things as principles and elements of the universe, just as if the nature of each was known;—whereas at the same time any one with

* That is, philosophy, which likewise is signified by the term *ἡ μουσικὴ*.

† Gr. *τὸ τῆς πλανωμένης εἶδος αἰτίας*.

the least intelligence must be aware that they cannot be compared even to letters or parts of which syllables are formed. As respects onrselves, this is what we propose:—we will not speak of the principle or principles, or whatever other denomination they may receive, of all things;—and this for no other reason than the difficulty of stating what are my sentiments according to our present method of discussion.* Do not expect me then to speak thus, for I cannot persuade myself that I have the ability to undertake so difficult a subject. Keeping, therefore, to the line of argument laid down at the beginning, on the force of probability,† I will endeavour to make statements not less probable than those of others, and beginning the subject once more from its commencement ‡ to discourse on the matter both in detail and as a whole. First, then, invoking the divinity who has now from the first been the guardian of our discourse, to defend us from an absurd and unusual exposition and lead us to a doctrine founded on probability—let us again begin to speak.

XXII.—This fresh commencement then, of our present discussion requires a more ample division than the former. For then we distinguished only two species; but we must now admit a third. In the former discussion two were sufficient;—one set forth as a species of model, apprehensible by the intellect, and always subsisting on the principle of sameness,—the second an imitation of the model, generated and visible; and we did not then distinguish a third, because we deemed these two sufficient. But now the subject of discourse seems to compel me to introduce and explain a new species which is both difficult and obscure.§ Of what natural power, then, are we to conceive it possessed? It is indeed in some sort the special receptacle, and, as it

* Gr. *κατὰ τὸν παρόντα τρόπον τῆς διεξόδου.* Stallbaum considers this phrase as equivalent to *κατὰ τὸ εἰκός.* We have preferred giving a literal interpretation of the words themselves.

† Gr. *τὸ δὲ κατ' ἀρχὰς ῥηθὲν διαφυλάττων, τὴν τῶν εἰκότων λόγων δύναμιν,* &c. He is here alluding to what he had said in his introduction of the subject, ch. ix.

‡ Gr. *μᾶλλον δὲ καὶ ἔμπροσθεν ἀπ' ἀρχῆς.* Stallbaum suggests as an emendation, *κατὰ τὰ ἔμπροσθεν, according to the plan of our former discussion*:—but this is scarcely needed.

§ On the nature of primitive matter and the distinction between matter finite and matter infinite, see Stallbaum's long and learned note *ad locum.*

were, the nurse of all generation. Such indeed is the truth:—but we must speak more clearly concerning it. And this will certainly be an arduous undertaking on many accounts, but principally on account of the questions that must previously be settled concerning fire and the rest of the elements,—why one should be called water rather than fire, or air rather than earth, or why any one of them should bear one name in particular rather than all the rest; thus rendering it a difficult matter to use a language about it that is fixed and stable. How then, and by what means, are we to arrive at a probable conclusion in this dilemma?

In the first place, then, what we now denominate water, on becoming condensed, seems to take the form of stones and earth,—and when melted and dispersed, that of vapour and air;—air also, when burnt up, becomes fire, while the latter again, on becoming condensed and extinct, resumes the form of air; and again air, when collected and condensed, produces mists and clouds, from which, when still more compressed, rain descends; and from water again are formed earth and stones;—[the whole of them,] as it seems, exchanging all round their mutual generation.*

XXIII.—As these, then, never maintain any constancy of existence, who will have the assurance to maintain that any one of them is *this* rather than *that?* No one:—and it would be far the safest plan to speak about them as follows:—When we see anything constantly passing from one state of existence to another, as fire for instance, we should not say that it is fire absolutely, but something fiery,—and again, that what we call water is not absolutely so, but something watery; without assigning to them any names that would give the idea of stability, as we think people do, when they express it by *this* and *that* (*τόδε καὶ τοῦτο*);—for not being of an abiding nature, it cannot endure to have applied to it such terms as, *this thing*, *of this nature*, *belonging to this;* and any such others as would show it to have a substantive existence. Hence we should not give any one of them an individual name, but call it something such-like, but ever fluctuating; and especially with respect to fire, [we should assert] that it is wholly such-like, and similarly likewise, every-

* Gr. *κύκλον τε οὕτω διαδιδόντα εἰς ἄλληλα, ὡς φαίνεται, τὴν γένεσιν.*

thing endued with generation. [That receptacle,] however, in which each of these appears successively to grow up and decay, that alone is entitled to be termed *this* and *that*;—whereas anything of any kind soever, as hot, white, or their contraries, and all therefrom proceeding, cannot be so denominated. But let us again try more clearly to explain our meaning. If any one, in modelling all kinds of figures out of gold, were unceasingly to transform them one by one into all the others, and some one present were to point to one of them and inquire what it was, it would be by far the safest and most correct to say that is gold; but as for its being a triangle, or any other figure that might be given to it, not to speak of them as being so in reality, inasmuch as they are in process of change, even while we make such assertion; but to be content if it may safely be denominated such-like, [or of such a nature]. The same remark applies to that which receives all bodies;—and we should ever call it by the same name, as it never abandons its own proper power, but perpetually receives all things, and never anywhere or in any way assumes any of those shapes that enter into it,—being in fact a natural receptacle for everything,* receiving both motion and form from what enters therein; and this is why it exhibits a different aspect at different times. But as for the representations of the objects that enter and depart hence, they are modelled after them in a manner wonderful and difficult to describe, as we shall hereafter relate.

XXIV.—For the present, then, we must consider three things:—first, that which is produced,—the second, that in which it is produced,—and the third, that of which the thing produced is the natural resemblance. And especially is it proper to compare that which receives to the mother (*i. e.* which supplies the model), that from which it receives to the father, and the nature intermediate between these to the child;† and to consider, also, that as the image should

* Gr. *ἐκμαγεῖον γὰρ φύσει πάντι κεῖται.* This unusual meaning of *ἐκμαγεῖον* is well explained by a passage in the opening of the Timæus Locrus, p. 94, a.—*τὰν δ' ὕλαν ἐκμαγεῖον καὶ ματέρα τιθάναν τε καὶ γεννατικὰν εἶμεν τὰς τρίτας ουσίας.* The words *χώρα* and *ἕδρα* are sometimes used in this dialogue to express a similar notion; viz. the primitive matter of things created, infinite in extent but capable of receiving shapes.

† This passage is alluded to by Aristotle, Metaph. I. ch. 6.

present every possible variety of forms, that in which the model is formed cannot well be prepared for the purpose, unless those forms have been erased from it which it used to receive from other quarters. Indeed, if it were like any of the objects that enter into it, if aught were to present itself of a nature contrary and wholly different, it would produce a bad likeness thereof. And hence from presenting at the same time its own image, that which is destined to receive within itself all the different species possible, should itself be destitute of all form whatever;—just as those preparing sweet-smelling unguents take all pains to render wholly inodorous the liquids that are to receive the perfume,—and as those also who wish to impress figures on a soft substance carefully remove from it any previous impression, and make it, as far as they can, exquisitely smooth and well-polished. In the same way, then, that which is intended properly to receive through its entire extent the resemblances of eternal beings, should be naturally without any form whatever of its own. Hence, as to this mother and receptacle of things created, which is visible and every way perceptible, we cannot term it either earth, air, fire, or water,—nor again, any one of their compounds, or any of the elements from which they were produced; but we should not be at all wrong in calling it a certain invisible and shapeless essence, which receives all things and has a certain share of intelligence,—though how it has it, is a matter very obscure and difficult of apprehension. So far, however, as it is possible to arrive at its nature from what has been previously said, we may very correctly say that fire appears to be something inflamed,* water something moist,—and so in like manner, earth and air, so far as it receives the images of these bodies.

XXV.—Let us, then, be somewhat more minute in resolving the following question,†—whether there is a certain

* Gr. *πῦρ μὲν ἑκάστοτε αὐτοῦ τὸ πεπυρωμένον μέρος φαίνεσθαι.*

† The question now proposed is, whether the elementary bodies have a separate existence and eternal ideas, or whether those only are certain that are cognizable by the senses. On this point he says, that just as *science* and *opinion* widely differ, so also do the *ideas* of things and the *things* submitted to the senses. Different, however, from both these is the *χώρα* or receptacle of that infinite matter, which can only be conceived by a bastard sort of reason; because the infinite is not the subject

fire subsisting in itself,—and so also, as respects other things which we always say have a separate existence in themselves, whether the objects alone that we see, and which are perceived through the bodily organs, possess reality of being, and nothing besides these has any existence at all,—or whether we are wrong in asserting that each of them has its corresponding idea, when after all it is nothing but idle talk. The present question, therefore, we must not decide without much judicious examination; neither should we add to our present discourse any great length of matter not strictly belonging to the subject:—but if there should appear to be any limit, by which it can be contained within a small compass, that would of all things be the most opportune to our present design.

Thus, then, will I state my opinion. If intellect and true opinion are two separate kinds of things, there must necessarily be self-existing ideas not perceptible by the senses, and to be apprehended only by the intellect; but if, as appears to some, true opinion differs in no respect from intellect, everything perceived through the body should be considered perfectly real. We must consider them, then, as two distinct things, because they both have a separate origin and character, one of them produced in us by learning, the other through persuasion,—one always based on true reason, the other irrational,—the one not to be moved by persuasion, the other subject to such mutation:—and lastly, of true opinion every man has a share; but of intellect only the gods, and some small portion of mankind.

XXVI.—Such being the case, we must acknowledge that there is an idea which subsists according to sameness, unproduced and not subject to decay; receiving nothing into itself from elsewhere, and itself never entering into any other nature, but invisible and imperceptible by senses, and to be apprehended only by pure intellect; while the second, on the other hand, which is like it, and bears the same name, is perceptible by the senses, the effect of production, ever in motion, coming into being in a certain spot, and then again hastening to decay, being apprehended by opinion united with perception. Again, there is a third

of mental intelligence, but is, as it were hypothetically, considered by an inferior reasoning faculty.

class of being,—that of eternal place; which is never destroyed, but becomes a seat (or receptacle) for everything created, being perceptible of itself without the interference of the senses, by a sort of bastard reason, though scarcely to be relied on; and hence seeing it, as in a dream, we assert that every being must necessarily be somewhere, and in a certain place, and that nothing can exist which is neither on earth or in the heavens. With regard to all these, and such like opinions and the ideas which are entertained in a waking state and have a positive existence, we cannot, owing to this dreaminess, clearly distinguish the one from the other, and state what is the fact,—that the image, which cannot claim as its own that even for which it is formed, but is ever borne along as the spectre of something else, must consequently be formed in something else, and somehow vindicate to itself a separate essence, if it has any existence at all;—whereas, with regard to real being, true and accurate reason aids it by affirming, that as long as two things differ from each other, they cannot so exist one in another, as to be at the same time two things and one only.*

XXVII.—This, then, is a summary of my opinion,—that there are three distinct things which existed before the formation of the universe, *being*, *place*, and *generation*;—that the nurse of generation, moistened and inflamed, receiving the forms of earth and air, and experiencing all the other accidents thereon consequent, appeared under many various aspects; but as it was contained by powers neither similar nor equally balanced, it could not possibly be balanced itself, and through the want of such balance, became itself impelled by these forces, to which it again in turn gave impulse;† while the parts in motion were separately hurried along in different directions, like things shaken and winnowed

* This passage is somewhat difficult and involved; but Plato's meaning seems to be, that the things falling under the senses are conformed according to the example of the ideas, and are, as it were, representations thereof, though different from the ideas themselves:—and hence there must necessarily be some matter in which they have been moulded, or else they can have no permanent existence; though nevertheless sound reason shows us that there is a wide difference between them and the ideas properly so called.

† On the full meaning of this passage, see Stallbaum's long note *ad locum*.

by sieves (πλοκάνων) and machines used for the cleansing of corn, the dense and heavy particles in one direction, those that are light settling in another quite different. Thus when these four classes were agitated by their receptacle, which was itself moved as by the shaking of the [above-mentioned] instrument, there was a separation of the dissimilar parts, and a crowding together of those most alike; in consequence of which these other things also occupied a different position, before the universe was created and from such materials reduced to order. Before this, indeed, they all subsisted irrationally, and without measure;—but when the Creator undertook to arrange the universe, he first gave shapes with forms and numbers to fire and earth, water and air, which possessed indeed certain traces of their true essence, though, nevertheless, wholly so situated, as everything would probably be, in the absence of its god.* And let us above all things hold, and ever hold, that the Deity made them as far as possible the most beautiful and the best, when before they were in a totally different condition. Now, then, I will try to show you the distribution and generation of these things individually by a somewhat unusual mode of proof; but yet, as you have trodden the paths of mathematical learning, through which we must necessarily make our demonstration, you will not fail to follow me.

XXVIII.—First, then, that fire and earth, water and air, are bodies, is evident surely to every one. But every species of body possesses solidity; and every solid must necessarily be contained by planes. Again, a base formed of a perfectly plane surface is composed from triangles.† But all triangles are originally of two kinds, each of them having one angle a right angle, and the two others acute:—and one of these has

* What Plato here means is, that the elements before the creation, although infinite, shapeless, and soulless, contained within them certain traces of their true essence, and were afterwards made finite and of fixed shape by being clothed, as it were, with forms and numbers.

† Gr. ἡ δὲ ὀρθὴ τῆς ἐπιπέδου βάσεως ἐκ τριγώνων ξυνέστηκε. These notions about triangles were decidedly Pythagorean, as we are informed by Proclus in Euclid, II. 46. οἱ δὲ Πυθαγόρειοι τὸ μὲν τρίγωνον ἁπλῶς ἀρχὴν γεννήσεως εἶναί φασιν καὶ τῆς τῶν γεννητῶν εἰδοποιΐας, &c. See also Martin's note, 67, *Etudes sur le Timée*, ii. p. 236—8. Plato, however, could have been no mean geometrician himself, having studied under Theodorus.

an equal part of a right angle divided by the equal sides; while in the other, two unequal parts of a right angle are divided by the unequal sides. This, then, we lay down, according both to probability and necessity, as the origin and principle of fire and all other bodies;—but as for the heavenly principles thereof, these indeed are known only to the Deity, and to those among men who enjoy God's favour.

We must relate, then, of what kind those four most beautiful bodies were that thus came into being, and which, however unlike each other, may yet be produced from each other by dissolution. By accomplishing this, indeed, we shall ascertain the truth about the generation of earth and fire, as well those elements (*i. e.* water and air) which in their just proportion hold an intermediate position; for then we shall allow no one to assert that there are visible bodies more beautiful than these, each of which belongs to a separate class. It must be our endeavour, therefore, to unite together these four kinds of bodies so excellent in beauty, and so prove to you that we have sufficiently apprehended their nature. Of the two triangles, indeed, the isosceles has but one form, while the oblong or scalene admits of infinite variety. We must select, therefore, the most beautiful among the infinites, if we would begin and proceed in due order:—still if any one can prove that he has found any form yet better and more suitable for the composition of these bodies, he shall be treated not as an enemy but a friend, and his opinion shall prevail. As for us, however, we fix on one only as the most beautiful of all the many triangles, passing over all the rest;—that out of which is formed a third, the equilateral triangle.* To explain the reason of this would indeed require a somewhat lengthened proof:—nevertheless we propose a handsome reward for him who by a diligent investigation finds this not to be the case. We select, therefore, two triangles out of many, from which the bodies of fire and the other elements have been constructed,—one being an isosceles, the other one always having the square of its longer side the triple of that of the shorter.

But what we formerly asserted rather obscurely, we must

* ἐξ οὗ τὸ ἰσόπλευρον τρίγωνον ἐκ τρίτου συνέστηκε. The sense of the whole passage is explained geometrically in Stallbaum's note. We here give only what seems the correct rendering of the Greek.

now more accurately define. For all the four kinds [of elements] seemed to be mutually generated among each other from not being correctly represented; for there are generated from the triangles which we have just chosen, four kinds [of solid figures]—three of them, indeed, from one having unequal sides, and the fourth alone constructed from the isosceles triangle.* All of them, therefore, cannot, by dissolution into each other, produce from many small things a few that are large,—this being effected only by three of them; for all things whatever naturally arise from one only, and when the greater parts are dissolved, many small parts will be formed out of them, receiving figures suitable to each; and again, when the numerous small parts are dispersed into triangles, a single number is formed, and the entire bulk constitutes one separate body of large size.† Thus much then may suffice concerning their mutual generation.

XXIX.—We must speak next in order concerning the quality of each class individually, and show from what composition of numbers each was formed. The first, then, indeed, is that composed from the smallest triangles, its element being that which has its subtending side twice the length of the shorter. Now, two of these triangles being mutually brought together to form a diagonal diameter, and this being thrice repeated, so that the diagonals and shorter sides shall meet in the same point, as in a centre, the result will be one equilateral triangle composed of six triangles. But four equilateral triangles form by the union of three plane angles one solid angle, the size of which exceeds that of the most obtuse plane angle; and thus by forming a figure that comprises four of these angles, we constitute that first species of solid, [the tetrahedron,] which divides into equal and similar parts the entire sphere in which it is inscribed. The second species of solid, [the octahedron,] is formed from the same triangles, which unite to form eight equilateral triangles, and form one solid angle from four plane angles, six solid

* Namely, the *tetrahedron* or pyramid, *octahedron*, and *icosahedron*, which are generated from six equal-sided triangles, and fourthly, the *cube*, generated from an equilateral triangle. See Stallbaum, *ad locum*.

† Gr. γενόμενος εἰς ἀριθμὸς ἑνὸς ὄγκου μέγα ἀποτελέσειεν ἂν ἄλλο εἶδος ἕν, lit. *one number being formed will complete one separate and large kind of single mass.*

angles being requisite to constitute this second class of solids. The third, [the icosahedron,] is formed from the union of one hundred and twenty elements, so united as to form twelve solid angles, each formed by five plane equilateral triangles, and it has for its bases (or faces) twenty equilateral triangles. These are the only solids that can be formed from this element, [viz. the scalene triangle]. It was the isosceles triangle, however, that produced the fourth elementary figure,—four of them being so united with their right angles at the centre, as to form one equilateral four-sided plane; and six of these again united forming eight solid angles, each of which is formed by the combination of three plane right angles;—the figure of the body thus composed being cubical, having six plane quadrangular equilateral bases. There was yet a certain fifth combination, [the regular dodecahedron;] and this the Deity employed in tracing the plan of the universe.*

XXX.—Should any one then, after careful consideration of all these points, be at a loss to determine whether the number of worlds is infinite or finite,† let him consider that to admit an infinite number thereof, would be the notion only of one who is ignorant of all that he should best know. Still it may with much propriety be questioned whether there is in reality only one world, or whether there are five. According to our opinion, indeed, which is founded on probable reasoning, there is but one world; though others perhaps, regarding the question in another point of view, may be of a different opinion. Let us now leave alone further speculations of this kind, and returning to the elementary forms that have now been created in our discussion, let us assign them respectively to fire, earth, water, and air. To earth, indeed, let us assign a cubical form; for of all the four kinds earth is the most immoveable, and is of all bodies the most easy to model,—such being necessarily the case with that which has the most secure bases. Among the triangles, then, that we originally mentioned, that which has equal

* On these geometric forms or elementary particles, we must refer the reader to Martin's *Etudes sur le Timée*, notes 66—69, ii. pp. 234—250, where the whole subject is exceedingly well explained and illustrated.

† It was the opinion of Democritus that the worlds are infinite; and the same notion was afterwards entertained by Epicurus. Comp. Diog. Laert. ix. sect. 44, and Cic. Acad. Q. iv. 17.

sides possesses firmer bases than one having unequal sides; and of the two equilateral plane figures thus formed, the square has necessarily a firmer base than the triangle, whether considered with reference to its parts or the whole. On this account, in assigning this figure to the earth, we still preserve probability;—and we shall do this also by assigning to water that figure which is the least moveable of the whole, to fire that which is most so, and to air that which is intermediate between the two,—assigning also the smallest body to fire, the greatest to water, and to air one of a size intermediate between fire and water;—and again, the most subtile body to fire, the next in this respect to air, and the third to water. Among all these then, that body which possesses the fewest bases must necessarily be the most easily moveable, as well as most penetrating, and in every way most acute, being also exceedingly light, from being composed of the smallest possible number of elements:—and so also the second has these properties in a secondary degree, and the third in the third degree. Let it be agreed then, that, according both to strict and probable reasoning, the solid form of the pyramid is the element and germ of fire; that the second form described is air; and the third water. All these elements then, we must conceive to be so minutely small, that the individual parts of each kind may from their smallness escape notice, and yet when many of them are collected together, they become from their bulk the objects of our perception.* Moreover, as respects their relative proportions, numbers, motions, and other properties, the Deity, so far as the nature of necessity has willingly and obediently given way, has firmly established and united them together in just proportion.†

XXXI.—From all then that we have before said about the nature of these bodies, the following account seems to be the most probable:—Earth, when it meets with fire, and is dissolved by its subtility, is borne along hither and thither in a dissolved state either in the fire itself, or in the air, or in the

* Gr. *ξυνασθροισθέντων δὲ πολλῶν τοὺς ὄγκους αὐτῶν ὁρᾶσθαι.*

† Gr. *ταύτῃ πάντῃ δι' ἀκριβείας ἀποτελεσθεισῶν ὑπ' αὐτοῦ ξυνηρμόσθαι ταῦτα ἀνὰ λόγον.* Here is an awkward anacoluthon from the introduction of the passive perfect *ξυνηρμόσθαι*, for which Stephens suggested, as an emendation, *ξυναρμόσασθαι*.

water,—till its parts, meeting together, and again mutually harmonizing, once more become earth; for they can never take any other form. But water, when divided by fire or air, may, by the re-composition of its parts, become either one body of fire, or two bodies of air;—and as for the air, when it is decomposed, one only of its particles will produce two of fire. And again, likewise, when fire receives into itself either air or water or earth, though in small quantities relatively to the mass which contains it, if it be dragged along by the movements of these bodies and overcome in spite of all resistance, and at last be decomposed and broken in pieces, these two bodies of fire will coalesce into one of air; and if again the air is overcome and separated into parts, then from two wholes and a half there will be formed one whole body of water. Again, let us consider this matter as follows:—When any one of the other forms is enclosed by fire, and is cut by the acuteness of its angles and sides, it escapes further division by passing into the nature of fire:—for among bodies that are uniform and similar to each other, no one by itself can cause any change in one of the same class, or experience any itself, with respect to that which it resembles; whereas, when one class of bodies is contained within another, and the weak one contends with the stronger, it will not fail to be destroyed. And again, when the smaller, being comprehended in the greater, and the few by the many, are broken in pieces and extinguished, if they be disposed to adopt the form of the prevailing nature, they cease to be extinguished; and air becomes generated from fire,—water from air:—but if they attack and fall into contention with any of the rest that they may meet, the agitated parts continue to be dissolved, till being every way repulsed and dissolved, they fly to their kindred nature; or else, being overcome, and joined into one out of many similar to the prevailing power, they abide there in familiar union. And especially, as the result of these affections, all things whatever are mutually changing their positions;—for the numerous individuals of each class are distinguished according to their respective places through the motion of their receptacle, while those that are mutually dissimilar, but yet resemble others, are hurried on by the concussion [of other bodies] to the place occupied by the bodies they resemble.

All unmixed and primary bodies then are generated from such causes as these:—but that other classes of bodies are naturally inherent in these forms, is owing to the composition of each rudimental part (στοιχεῖον); which not only at first produces one triangle, possessed of a certain magnitude, but others also, both greater and smaller, equal in number to the various classes existing in the forms themselves;—and hence, these being mingled with themselves and each other, are infinite in their variety,—a fact which every one should consider, who means to argue with probability respecting the nature of things.

XXXII.—Concerning motion, then, and position, unless a person can clearly understand in what manner and in conjunction with what these two take place, he will meet with many hindrances in the subsequent part of this discourse. This matter indeed we have already partly discussed; but besides this, we must still inquire whether it be true, that motion never willingly resides in smoothness, inasmuch as it is difficult, or rather impossible, to conceive the existence of anything moving without a mover, or of a mover without something in motion;—motion being impossible while these are away, and it being equally impossible that these should be equable and smooth. Thus, then, we must assign a state of rest to smoothness, and motion to that which is unequal and rough; inequality indeed being the cause again of a rough uneven nature. Now, as regards the generation of inequality, that we have already discussed; but how the several bodies, when divided according to their classes, do not cease from their mutual courses and motions, this we did not explain:—and so we will once more make it the subject of inquiry. The revolution of the universe, since it comprehends the various classes of things, and is of circular shape and naturally desirous of uniting with itself, compresses all things together, and suffers no place to remain void. On this account is it, that fire most of all penetrates through everything, and air, in the next degree, being second to the former in subtility and tenuity;—and the rest in the same way [according to their degree:]—for such as are composed of very large parts have a very large vacuity in their composition,—those, on the contrary, that are very small, a very small vacuity. The union, then, resulting from compression drives

together the small parts into the intervals of the larger; and thus, the small parts being placed side by side with the large, the smaller dividing the greater, while the latter compress the smaller, they are all borne upwards and downwards to the places respectively suitable to each;—for each, on changing its magnitude, changes its position likewise: and so, from these causes the production of diversity is constantly maintained, giving that perpetual motion to these bodies, which both now subsists and ever will continue.

XXXIII.—In the next place, we must understand that there are many kinds of fire;—as for instance, flame,—that which emanates from flame,* which without burning furnishes light to the eyes,—and that which abides in ignited bodies, even after the flame has been extinguished. In like manner, with respect to air, one kind is of the greatest purity, that denominated *æther*,—a second most turbulent, cloudy, and dark; and besides these, there are other nameless kinds formed by the inequality of the triangles. As respects water, again, it admits of a twofold division, one kind being liquid, the other fusible. The liquid kind, therefore, being composed of very small and unequal parts of water, becomes moveable, both of itself and by other bodies, through the inequality of its composition and peculiar shape of its figure; whereas the fusible kind, which is composed of large and smooth parts, is more stable than the former, as well as heavier and more compact, owing to its smoothness;†—and when fire enters into and dissolves its substance, it becomes more moveable, from losing its uniformity; and when it is thus rendered easily moveable, and is repelled by the surrounding air, and extended on the earth, it is said to be *liquefied*, by way of expressing the division of its masses, and is said to *flow* also, in order to show its extension over the earth:—and these two words express both the changes which it undergoes. Again, when fire escapes from this body, it does not retire into a vacuum, but the surrounding air repelled [by the fire] drives the easily-moveable mass of moisture into the place before occupied by the fire,

* Gr. *τό τε ἀπὸ τῆς φλογὸς ἀπιόν*. The old editions read *ἀπτόν*.

† The distinction between *τὸ ὑγρόν* and *τὸ χυτόν* is not easily conveyed in translation. The former means an elastic fluid like water,—the latter, a mass of greater density and less elasticity, such as jelly, syrup, or oil. We have rendered it *fused*, because in the next page the term is used respecting metals.

with which at the same time it becomes mingled;—but when the mass by close compression once more becomes equable and smooth, it then resumes its smoothness and consistency, because fire, the artificer of inequality, has taken its departure;—and this departure of fire we denominate *cooling*, while the union that takes place without the presence of fire is termed a *condensation* [or hardening]. But among all those which we term fusible fluids, there is one that becomes most dense, though formed from the most subtile and equable parts, and is of an uniform character, and partaking of a lustrous yellow colour:—it is that most highly prized possession,—gold, which is produced by filtration through a rock. And a node (ὄζος) of gold, rendered by its density very hard and turned black, is called *adamant*. But that which consists of parts greatly resembling gold, and has more than one species, which surpasses gold in density, and that it may become the harder, contains but a small and insignificant portion of earth, though at the same time it is lighter, owing to the great intervals between its internal atoms;—this is a separate kind of lustrous and dense fluids, termed *brass*. But an earthy nature is therewith mingled, which, when through age the two parts become separated soon becomes visible of itself, and is denominated *rust*. All other such matters also, it would be no hard task further to discuss by pursuing the plan of probable arguments;—and any one, who by way of recreation interrupts for a while his reasonings on eternal being, and enters into probable speculations about the generation of material things, will by these means acquire a pleasure of which he need not repent, and establish for himself a moderate and wise recreation during life.

XXXIV.—Thus indulging ourselves, let us next recount certain probable reasons concerning what next follows of the same subject. Water that is mingled with fire, which being very thin and moist, takes its name * (ὑγρὸν) from its motion and the manner in which it rolls on the earth, and which is

* The Greek text is evidently corrupt. It stands as follows:—*τὸ—— ὕδωρ, ὅσον λεπτὸν ὑγρόν τε διὰ τὴν κίνησιν καὶ τὴν ὁδὸν ἣν κυλινδούμενον ἐπὶ γῆς ὑγρὸν λέγεται*, &c. Stallbaum suggests the removal of the last *ὑγρόν*, and the insertion of *ἐστί* after *κυλινδούμενον*. This suggestion has been followed in our translation.

also called soft and yielding, because its bases are less stable than those of earth,—this, when separated from fire and bereft of air, acquires more uniformity, and through their departure (*i. e.* of air and fire) is compressed into itself;—and when it is thus condensed above the earth, it becomes hail, if on the earth, ice; but when there is less of it and only half the amount of freezing, [the water so condensed] above the earth becomes snow, and that on the earth, which is formed from dew, is called hoar-frost. When again the numerous kinds of water are mingled together, the entire liquid thus formed, which is filtered from the earth through plants, takes the name of juices or saps. Owing, however, to their mode of admixture, these individual fluids present through their dissimilarity many different undescribed varieties, although four of them, which are of a fiery character, and particularly transparent, have obtained appropriate appellations;—that which heats the soul as well as the body being called *wine*,—secondly, that which is smooth, and dazzling to the sight,* and hence bright, glittering, and apparently of an oily nature, such as pitch, the gum of the kiki-plant,† oil, and other things having similar properties;—again, that which possesses a power, as far as nature permits, of diffusing the substances of nutrition over the palate, and by this property presents the idea of sweetness, has obtained the general name of *honey*;—and lastly, that frothy fluid, which dissolves the flesh by burning, has been distinguished from all the other juices by the name of *opium* (ὀπός).

XXXV.—As respects the different kinds of earth, one of them, stone, is produced by the filtration of water in the manner following. The commingled water, when it loses its coherence, passes into the form of air, but, on becoming air, rises to its appropriate place. As, however, there is no vacuum, it presses on the surrounding air; and this, being weighty, and impelled against the mass of earth that it surrounds, violently compresses it, driving it into the vacant spaces whence the new air had before ascended. The earth, also, by the compression of the air into indissoluble union with water, is formed into stones; the more beautiful sorts of

* Gr. διακριτικὸν ὄψεως, lit. *having the power of separating sight.*

† This is the same as the σιλλικύπριον or *Palma Christi*. Comp. Herod. ii. 94, and D. Turner's note thereon.

which acquire a lustre from the equality and smoothness of their parts, the opposite being the case with those that are ugly and valueless. But when all the moisture is thrown off by the violence of fire, and the body is thus unusually dried up, then is formed the kind of earth that we call clay. Sometimes also, even without losing its moisture, the earth is fused by the fire, and on cooling becomes a stone of a black colour.* In the same manner, when this earth is deprived of the water it holds in mixture, but yet has small particles and is of a saline nature, it forms a half-solid body, still capable of solution in water,—either nitre, which purifies both oil and earth, or else salt, a substance so well adapted to give flavours pleasing to the palate, and deemed by the law as agreeable to the gods. The compounds of these two substances are not soluble by water, but yet can be melted by fire, for the following reasons. Neither fire nor air liquefies masses of earth; because, being naturally composed of elements smaller than the interstices (or pores) of earth, they easily penetrate through these capacious pores without subjecting it either to dissolution or liquefaction. The parts of water, on the other hand, as they are larger, strive to force a passage, and so dissolve and liquefy the earthy mass:—and hence, when the earth has no strong consistency, water alone will dissolve it, whereas if in a compact state, nothing will affect it but fire, which is the only body that can find an entrance. As for water, again, its strong cohesiveness of parts, [when frozen], can be overcome only by fire, whereas, when the cohesion is less strong, it can be equally decomposed by fire and air, the latter entering its interstices and the former separating even its constituent triangles. Nothing, however, can dissolve air strongly condensed, without attacking its composing elements; though when it coheres less strongly, it may be dissolved, though only by fire. Again, in bodies composed of water and earth, while the water occupies all the interstices in its state of compression, the particles of water from without, not finding egress, flow round the entire mass without suffering decomposition; whereas the particles

* Lindau conjectures this to be *basalt*. It is probably lava, or some similar volcanic product. The same commentator conceives the λίτρον mentioned in the succeeding sentence to be *potash* or some alkali suitable for mingling with oil to form soap.

of fire that enter into the interstices of water, as water into those of earth, and have the same effect on water that fire has on air, alone possess the power of dissolving and liquefying the compound body. And among these, some contain less water than earth; such as all kinds of glass, and such stones as are termed fusible; while others, on the contrary, contain more water, such as wax and aromatic substances.

XXXVI.—Having thus then enumerated the several figures and classes of bodies variously formed by admixtures and mutual changes, we must now try to explain the causes of the feelings with which they impress us. First, then, the bodies here spoken of must be always perceptible. As yet, however, we have not discoursed on the generation of flesh, and what belongs to flesh, nor on that part of the soul which is mortal. This nevertheless cannot be suitably explained without at the same time explaining the sensations and impressions produced by external objects; and although one subject cannot be unfolded without a knowledge of the other, yet the two cannot be explained together. We must settle one first, and then proceed to the other. In order, then, in speaking of impressions, to observe the same order as in speaking of the bodies producing them, let our first inquiry be into those that concern the body and soul.

First, then, let us inquire why fire is called *hot*, the reason of which we shall perceive by considering its penetrating and cutting power about our bodies. Now, that this affection is a certain sharpness * is nearly evident to all; and as regards the tenuity of its sides, the sharpness of its angles, the smallness of its particles, and the velocity of its motion, through all which it becomes violent, penetrating and capable of instantly dividing whatever it meets; this we should carefully consider, recalling to mind the generation of its figure; —inasmuch as it is this, and no other nature, which separates and parcels out our bodies into small portions, and produces in us that affection which is very properly denominated *heat*. Now the contrary to this is sufficiently manifest; but still we must not pass it without explanation:—for in truth, among the humid particles surrounding the body, those that have the largest elementary parts enter and drive out the smaller;

* Gr. ὀξύ τι τὸ πάθος,—meaning, that the affection resembles the impression formed by an acute angular body.

but being unable to occupy their places, they compress our bodily humours, and from being uneven and in a state of agitation, fix them and render them motionless through their evenness and density;—whereas things brought into contact against nature are naturally opposed and mutually repel each other. From this contest and agitation then there resulted a certain trembling and numbness; and the whole of this affection, as well as the cause that produces it, has the name of cold. Again we call those bodies *hard* to which our flesh yields; and those *soft*, which yield to the pressure of our flesh;—thus using the terms comparatively, with reference to each other. Bodies also yield to pressure when placed on a small base, while those resting on quadrangular bases are the least impressible, owing to their very firm position, and because from their own extreme density they strongly resist all opposing pressure.

XXXVII.—Again, the nature of heavy and light will become most evident, if investigated with that of *up* and *down*;—for it is by no means right to assert that there are naturally two distinct places opposite one to the other;—one termed *down*, to which all bodies tend that are endued with bulk, but the other *up*, to which bodies ascend contrary to their inclination. The whole universe, indeed, being spherical, all such things as are at the extremities (or circumference) and equally distant from the centre must all in like manner naturally belong to the extremities, while the centre, being in the same proportion distant from all these extremities, must be said to occupy quite an opposite position. Such then being the nature of the world, would not any one who reversed the position of the above-mentioned objects be fairly thought to apply names to them that are quite unsuitable? For the middle place in it cannot be fairly said to be either naturally down or up, but only the centre itself; and the circumference is neither the middle, nor does it contain within it any parts more distant than the rest either from the centre, or any of the opposite extremities. But when all the parts are naturally so similar, how can any one with propriety assign to them contrary names?—For supposing there were any regular solid body in the centre of the universe, it would never be carried to any of the extremities, owing to their entire uniformity;—but on the other hand, if any one were to move

in a circle round this solid, he would often stand with his feet opposite to where they before were, and so call the same part of himself both the upside and down. Since the universe, therefore, as we have just observed, is of a spherical figure, no prudent man should assert that it has any part which is [absolutely] either up or down;—yet, as regards the origin and usual application of these terms which we thus transfer to the universe, this we agree to be a proper subject of investigation. If, in that spot of the universe which specially belongs to fire, and where the principal mass is collected with which it has a tendency to unite, any one were to ascend thither and being possessed of the requisite power, were to take up the particles, place them in a balance, and raising the scale, were forcibly to draw the fire towards the air, with which it has no affinity, it is clear that in this case the smaller mass would be more easily impelled than the larger. Indeed, when two things are simultaneously raised by one and the same power, the smaller quantity must of course yield more readily than the greater to the impulsive force by which they are constrained; and hence, the one is called *heavy* and gravitating downwards, the other *light* and tending upwards. The same thing also is observable in what we ourselves do, who inhabit this place [the earth]. For when, in walking on the earth, we separate particles of an earthy nature, and sometimes even portions of the earth itself, forcibly and unnaturally drawing them towards the air which is dissimilar,—then that which is smaller yielding more readily to our impulse is sooner attracted towards the foreign element:—this then we call *light* and the place towards which it is drawn, *up* (or *above*), giving to their contraries the terms *heavy* and *down* (or *below*) respectively. Hence these must mutually differ from each other, owing to the contrary positions that the several elements occupy:—for that which is light in one place is contrary to one corresponding with it in an opposite position, and so also to a heavy body another that is heavy, and to bodies placed above or below others, opposed to them in their respective positions;—and they will all be found, whether in a state of becoming or actually existing, to be contrary, transverse, and every way differing from each other. This one thing, moreover, is to be understood concerning all these matters, that the tendency of

each towards a body of similar nature gives to the body so attracted the name *heavy*, and the place to which it tends, *down* (or *below*); and thus to contrary things are assigned contrary appellations. Such are the causes that we assign to these phenomena. And again, as to the cause of the impression of smoothness and roughness, every one who has investigated it will be able to disclose it to others; for roughness comes from hardness joined with unevenness, while smoothness is the united effect of uniformity and density.

XXXVIII.—It remains for us now to consider what is most important in those affections common to the whole body, which are the chief causes of pleasure and pain, and to inquire how it is that certain impressions excite through the parts of the body certain sensations invariably attended by pleasure and pain. Thus then let us examine all our impressions, whether sensible or not, calling to mind the distinctions that we before made between bodies moved with ease and those with difficulty;—for this is the way to arrive at the point that we wish to determine. When a body by nature easily moveable has received an impression ever so slight, the several parts communicate it to the parts placed around them, producing on these parts the same effect, until at length they reach the intellect itself, to which they announce the power of the agents producing such impression;—whereas a body, which on the contrary is firm and stable and has no circular motion, is simply affected by itself without moving any of the surrounding bodies; and hence, as their components do not mutually communicate the first received impression, the entire animal remains unmoved, and experiences no sensation. This is the case indeed as respects the bones and hair, and such other parts of the body as are chiefly of an earthy nature; whereas the phenomena above described principally refer to the organs of sight and hearing, which contain an abundance of fire and air. This is what we should hold then concerning pleasure and pain:—an impression produced in us contrary to nature, and with violence, causes pain,—one that is conformable to our nature, however strong, pleasure;—whereas an impression that is gentle and gradual is unperceived, while the contrary to these produces contrary effects. An impression, again, the whole of which is easily produced, is pre-eminently an object of sensation,

but is not affected by pleasure and pain:—and of this kind are the affections belonging to the sight; which indeed, as we have above asserted, is a body of a nature daily becoming allied to ourselves.* For in this way the impressions caused by cuttings and burnings, and other similar accidents, do not cause pain to the sight; nor again, does it experience pleasure, from returning to its previous condition:—whereas the sensations that are strongest and most clear do this, so far as any one is affected by any object; and this is the reason why there is no violence whatever either in its expansion or contraction. But bodies composed from larger parts, which yield with difficulty to impelling agents, and distribute their motion over the whole body, do experience pleasure and pain; pain indeed, when they are often alienated from their own nature, but pleasure when restored to their former condition. Again, all bodies that admit of very gradual withdrawals, and, as it were, emptyings of their own nature, and at the same time receive supplies on a large scale, have no perception of loss, though they have of what accrues to them; and hence, they do not give pain to the mortal part of the soul, but on the contrary the greatest delight:—and the truth of this is manifest from the sensation of pleasant odours. But such bodies, on the other hand, as suffer excessive variation, and can scarcely be restored even gradually to their pristine condition, are affected in a manner quite the reverse of those we have just described; the truth of which is manifest in the case of burnings and wounds inflicted on the body.

XXXIX.—Having thus then pretty fully discussed the common affections of the whole body, and the appellations assigned to their effective causes, we must now endeavour to explain, as far as we can, the affections that arise in particular parts of us, as well as the causes by which they are induced. In the first place then, let us if possible complete the explanation of what we before left unfinished about those of the juices,—namely, the particular affections subsisting about the tongue.† And these, as well as most others, appear

* Allusion is here made to ch. xix. p. 350 of this translation.

† Plato was not aware that the palate is the chief organ of taste, and that these sensations are transmitted to the sensorium by means of nerves (*i. e.* minute tubes filled with cerebral matter), all of which communicate either with the spinal marrow or the brain itself,—the centre of all sensa-

to be produced by certain expansions and contractions, the impressions formed thereby depending more on smoothness and roughness than all other circumstances; because, whenever anything falls on the small veins round the tongue (which are the arbiters, as it were, of the taste stretching to the heart), in such a way as to penetrate the moist and delicate texture of the flesh, which through its earthy nature is in a melting state, it contracts and dries up the veins:—and where these penetrating substances are rougher than usual, they have an acrid taste (*στρυφνά*), if less so, only one of sourness (*αὐστηρά*). Those on the contrary which purge, and wash away whatever adheres to the tongue, if they do this to such an immoderate degree, as somewhat to liquefy its nature, as nitre does;—all such as these are termed *bitter;* while substances of inferior power to nitre, which purge only moderately, we conceive to be *salt*, without that rough bitterness, and to be more friendly to our nature. Again, things heated by the temperature of the mouth, and thereby softened—which reciprocally heat and are heated by it—and which through their lightness are elevated towards the senses of the head, dividing at the same time whatever comes in their way;—all these, owing to such properties, are termed *pungent* (*δριμέα*). But when these same particles, thinned by putrefaction, enter into the narrow veins, and there come into contact with earthy and airy particles of a suitable size, and by making them mutually revolve, so mix them together as to cause a confusion of their elements, and thus by entering other veins form interstices in which the liquid, sometimes earthy, sometimes quite pure, forms, as it were, certain air-cavities enclosed by water, some of which formed of pure liquid are transparent, and called *bubbles*, while those composed of earthy liquid and in a state of agitation have received the name of seething (or boiling), and yeast (or leven);—the effective cause of all this being termed *acid* (*ὀξύ*). And an affection contrary to all that has been

tion, as Herophilus and Erasistratus held long prior to Galen. Plato, on the contrary, maintained that these sensations were carried by certain small veins (or arteries,—for he makes no distinction between them), to the liver—regarded by him as the seat (comp. ch. xliv.) of the lower mortal soul. The heart was regarded by Aristotle as the centre of the sensations.

asserted about these, proceeds from a contrary cause; for, when the liquid compounds that enter the mouth are naturally suited to the quality of the tongue, they lubricate its asperities, as well as contract or relax such parts as were before unnaturally dilated or compressed, and restore them, as far as possible, to their proper and natural habit. Hence all such substances are pleasant and friendly to every one, become the remedies of violent passions, and are denominated *sweet*. And thus much may suffice concerning particulars of this kind.

XL.—As respects the faculty of the nostrils, it admits of no classification: for all odours whatever are but half-begotten,—there being no substances so proportioned, as to give forth any particular smell. Besides, our veins surrounding the nose are too narrow to admit the various kinds of earth and water, and too broad for those of fire and air; and hence no one ever perceives an odour from any of these, —odours being produced from bodies that are damp, putrefying, liquid, or vaporous;—for odours are generated by the change of water into air, or air into water; and all these are either smoke or vapour. And of these, that which passes from air into water is *vapour*,—that which is changed from water iuto air, *smoke;*—whence it comes to pass that all odours are more subtile than water, and denser than air. And these facts are clearly shown, when any one, owing to any obstruction of the respiration, draws his breath inwards; for then no odour filters through, but breath only—unattended by any odours. This is why these two varieties of them are without a name, being formed neither from many nor from a simple species, the only two distinct terms respecting them, being *pleasant* or *unpleasant;* the latter of which irritate and violently disturb the whole cavity lying between the top of the head and the navel, while the former soothe the same part, and kindly restore it to its natural condition.

XLI.—Let us next speak of and investigate the third kind of sense,—the hearing, and the causes giving rise to the affections peculiar thereto. Now we may generally define *voice* as a certain pulsation of the air, penetrating through the ears, brain, and blood, as far as the soul; and the motion hence arising, which commences from the head and ends in the seat of the liver, *hearing;*—and that when this motion is

swift, it emits a sharp sound, when slow, a flat one,—the former being uniform and smooth, the latter quite the reverse and rough:—likewise, that when the motion is on a large scale it will produce a loud sound, and when on a small scale only a low one. But respecting the harmony of these sounds we must speak in the subsequent part of this discourse.

XLII.—The fourth kind of sense, which is still left for us to discuss, comprises a very large variety of what we generally term *colours*, which consist of a flame emanating from individual bodies, and having parts proportioned to the sight for producing sensation. But we have already considered the effective causes of sight.* Here then we ought to speak of colours, and what seems to us the most probable theory respecting them.

Among the particles that fall from other bodies on the sight, some are greater, others less than, and others equal to, those of the visual fire. Such as are equal, then, are imperceptible, and are termed transparent; while, as for those that are larger or smaller, the former contract, the latter dilate the sight, having a power resembling that of heat and cold on the flesh, or of things acrid, heating and pungent, on the tongue. Particles affecting the sight in this manner are called black and white;—having the property, indeed, of producing the same modifications in bodies, though, being produced in different parts of the organ, they still appear to produce different impressions. It is thus, then, that we ought to term them,—*white*, that which dilates the sight; and that which is opp osite in its effect, *black;*—whereas, when a sharper motion, and that, too, from a foreign fire, falls on and divides the sight even as far as the eyes themselves, and both separates and moistens the openings of the eyes, so as to force from them that united flow of fire and water that we call tears, and which are of a fiery nature coming from without,—these two fires meeting together with a force like that of lightning, and then saturated and extinguished by moisture, produce a great variety of colours, the impressions from which we term *flashings* (μαρμαρυγάς), and the objects producing them *bright* and *lustrous*. Another kiud of fire, intermediate between those just mentioned, and which reaches the moisture of the eyes, and

* Comp. ch. xix. p. 350—352 of this volume.

mingles with it, though by no means lustrous, and in which the rays of fire are mingled with moisture, and form a bloody colour; this we denominate *red*. A bright hue mingled with red and white forms the colour called *yellow*; but as regards the measure in which they mingle respectively, even a wise and thinking person could not explain it, were he ever so well informed on the matter, as he could not adduce concerning them any satisfactory reason, either necessary or probable. Again, red, when mingled with black and white, produces a *purple* colour; and a very deep colour is the result of their being mingled and burnt together, with a further addition of black. A *tawny red* is produced from the mixture of yellow and brown, and *brown* from the mixture of black and white; and a pale colour from the mingling of white and yellow. A brilliant white, falling on a large quantity of black, constitutes a *dark blue* (κυανοῦν); a deep blue mingled with white, a *grey* colour; and a tawny red mingled with black forms a *green*. All the other tints it will be easy to conjecture from the above examples, if one only reasons fairly from analogy. Nevertheless, any one who would prove them by the test of experiment evinces great ignorance of the difference between a divine and human nature; for a god indeed may be able to mingle many things into one, and again dissolve the one into many, through his united power and intelligence; but no man living can accomplish either of these tasks, nor will any one in time to come.

XLIII.—All these things which thus naturally subsist from necessity, the artificer of what is most beautiful and best took for his elements of creation, in producing a self-sufficient and most perfect god; employing secondary causes indeed, but at the same time performing his work well on all created beings. For this reason we must distinguish two species of causes; the one necessary, the other divine. And in all things we should inquire after the divine cause, with the view of obtaining a blessed life in the highest degree of which our nature admits, for the sake of which also we should investigate the necessary cause as well,—convinced, that without these two classes of causes, we can neither understand nor apprehend, nor otherwise engage in the several objects of our anxious pursuit. Since, then, we have now before us the various classes of causes, laid out like materials for our labour,

and which will serve as the matter from which we are to interweave the remainder of our discourse, let us again briefly recur to our first observations, and thence pass rapidly on to the place at which we are now arrived; thus endeavouring to annex such an end and close to our discourse, as may harmonize with its beginning.

XLIV. Just as we stated in the opening of our discourse, —when all sensible things were in disorder, the Deity made each individually to harmonize with itself and mutually with all the rest, so far as things could possibly be brought into symmetry and proportion; because formerly, nothing had any order except by accident, nor did anything whatever deserve the names that things receive at present; such, for instance, as fire, water, and the rest of the elements. All these, however, the Creator put in order first of all, and then out of these constructed the universe, as a single animal, containing within itself different kinds of animals, mortal and immortal,*—he himself being the artificer of Divine natures, but committing to his offspring (the junior gods) the charge of producing those that are mortal. The latter, in imitation of their father, receiving the immortal principle of the soul, next fashioned† the mortal body, making it entirely to be a vehicle thereto, and forming within it a separate mortal kind of soul, possessed of certain dire and necessary passions: first, pleasure, the chief lure to evil; next, pain, the desertion of what is good;—after these again, temerity and fear, both mad advisers; anger, hard to be appeased; hope, which is easily misled both by irrational sense, and all-daring love. By mingling these together, they [the junior gods] necessarily composed the mortal race. And on this account, fearing to defile the Divine nature more than was absolutely necessary they lodged man's mortal portion separately from the Divine, in a different receptacle of the body; forming the head and breast, and placing the neck between, as an isthmus and limit to separate the two extremes.‡

* Comp. ch. xi. p. 335 of this translation, and also the concluding sentence of the dialogue, p. 409.

† Gr. *περιετόρνευσαν*, lit. *turned in a lathe.*

‡ The *immortal* soul Plato has already (ch. xix. xx.) placed in the head,—in which opinion Hippocrates and Galen both coincide;—and he composed it of two circles, and endowed it with three faculties—intelligence (*νόησις*), science (*ἐπιστήμη*), and true opinion (*δόξα ἀληθής*).

In the breast, indeed, and what is called the thorax [or trunk],* they seated the mortal part of the soul. And as one part of it was naturally better, and another worse, they formed the cavity of the thorax into two divisions (resembling the separate dwellings of our men and women), placing the midriff as a partition between them. That part of the soul, therefore, which partakes of fortitude and spirit, and loves contention, they seated nearer the head, between the midriff and the neck; as it is the business of the reason to unite with it in forcibly repressing the desires, whenever they will not obey the mandate and word issuing from the citadel above.

XLV.—The heart, which is the head and principle† of the veins, as well as the fountain of the blood that impetuously circulates through all the members, they placed in a kind of sentry-house, that, in case of any outburst of anger, being informed by the reason of any evil committed in its members, owing either to some foreign cause, or else internal passions, it (the heart) might transmit through all its channels the threatenings and exhortations of reason, so as once more to reduce the body to perfect obedience, and so permit what is the best within us to maintain supreme command.

Here, however, he speaks of the *mortal* or sensuous soul, which he divides into two distinct parts,—the *male* or spiritual portion (*τὸ θυμικόν*), and the *female* or appetitive (*τὸ ἐπιθυμητικόν*). This seems to have been a notion of the Pythagoreans. Aristotle and Zeno placed the mortal soul in the heart only. On the three souls and their respective energies, comp. Martin's admirable note, vol. ii. pp. 296—302, *Etudes*, &c.

* Gr. *θώρακι*, a word used by Plato and Aristotle to mean not merely the upper part of the trunk, as by later writers, but the whole of it, from the collar-bone down to the pelvis. The word *κοιλία* in ch. xlvi. has a similar latitude of signification.

† Gr. *ἀρχήν*. This reading is introduced by Stallbaum (and followed by Cousin) from three of the best MSS. The old editions have *ἅμα*, which Stephens altered into *ἄμμα* (*a knot* or ganglion), and Toup into *νᾶμα*, both on mere conjecture. Plato clearly thought that the heart was the source of the blood and the centre of union for the veins, which he regards as messengers transmitting to the whole body the orders coming from the male part of the mortal soul; but he runs into the error of attributing to them the function of nerves, as well of motion as sensation. We may remark further, that he considers the veins to have two centres—the heart and the liver, which are the two seats of the mortal soul, and makes no distinction whatever between veins and arteries. See Martin's note, 140; ii. 301—304.

But as the gods foreknew, with respect to the palpitation of the heart under the dread of danger and the excitements of passion, that all such swellings of the inflamed spirit would be produced by fire, they formed the lungs to be a sort of protection thereto; first, of all, soft and bloodless,* and next, internally provided with cavities perforated like a sponge, in order to cool the breath which they receive, and give the heart easy respiration and repose in its excessive heat. On this account then, they led the channels of the windpipe into the lungs, which they placed like a soft cushion round the heart, in order that when anger rises in it to an extreme height, it might fall on some yielding substance, and so getting cool, yield cheerfully and with less trouble to the authority of reason.

XLVI. That part of the soul next, which has a desire for meats, drinks, and all else that is necessary for the natural supplies of the body, they placed between the midriff and the region of the navel; forming, as it were, in all this place a sort of manger for the nutriment of the body; and then they bound it on to it, like some savage animal, annexed as necessary to nourish the mortal race afterwards to be brought into existence. This place of course the gods assigned it, in order that ever feeding at its manger, and dwelling as far off as possible from the deliberative part of the soul, it might make the least possible degree of tumult and noise, and permit the best portion of our nature to consult in quiet for the common benefit of the whole. Knowing also that this part would not acquiesce with the reason, and, even if it had any faculty of sense, yet would not regard the processes of reasoning, but be chiefly lured away, both day and night, by images and phantasms,—reflecting on this, the Deity formed the liver, assigning it the place it occupies. And he made it compact and smooth, shiny and sweet, and yet somewhat bitter, —in order that the multitude of thoughts falling on it from the intellect as on a mirror that receives and presents images to the view, might on the one side terrify it by employing a bitterness akin to its nature; and proceeding to dreadful

* Plato is quite wrong in stating this;—for all the blood passes through them, in order to be supplied with oxygen by the air contained in the cells. This, however, is not nearly so great an error as his statement in ch. lxxiii. (speaking of generation), that the fluids we drink pass through the lungs into the bladder!

threats, gradually mingle this bitterness with the whole liver so as to present the dark hues of bile, and by contracting it, render it throughout rough and wrinkled;—or on the other, partly by removing the liver from its right place and contracting it, partly by obstructing and closing its ventricles and gates, cause impressions of pain and disgust:—whereas, on the contrary, when a gentle inspiration—the result of intelligence—depicts on it images of quite an opposite character, softens its bitterness by avoiding to agitate or touch anything contrary to its own nature,—it then gives it a softness peculiarly its own, and makes all its parts regular, polished, and free,—giving joy and peace to that part of the soul which resides near the liver, and making it enjoy a suitable repose at night, with the power of divination during sleep, to make up for its want both of reason and wisdom.*

XLVII. Those, forsooth, who created us, calling to mind their father's command, when he bid them make the mortal race as good as they possibly could, formed even the inferior part of us to have some connexion with truth, by establishing within it the faculty of divination. And a sufficiently clear proof, that the Deity assigned prophetic power† to human madness, is found in the fact that no one in his right senses has any concern with divinely inspired and true prophecy, which takes place only when the reasoning faculty is fettered by sleep, or alienated by disease or enthusiasm; while, on the other hand, it requires a person of considerable wisdom to understand the recorded sayings, whether sleeping or waking, of a prophetic and divinely-inspired nature, and so to distinguish all the phenomena it beholds as to be able to explain in what way and to whom they portend any future, past, or present good or evil; it being by no means the office

* Plato, in this purely fanciful description of the liver and spleen, seems to have been ignorant of the great use of the bile in promoting the digestion of the food during its passage through the duodenum; for in ch. lxiv. he considers it wholly in the light of a vicious secretion, though he acknowledges its presence in the healthy body as exercising a great influence over dreams and divination. Aristotle, while refuting Plato, is not a whit more correct as to this question in the animal economy. Hist. Anim. iv. 2.

† A distinction is to be observed between μάντεις and προφῆται,—the former referring to the *interpreters*, the latter to the *utterers* only of the divine oracles; but the words, as Plato observes, have often been confounded.

of one who either has been, or is still mad, to judge respecting things seen or spoken by himself:—and it has been well observed by the ancients, that to transact and know one's own concerns and oneself is alone the province of a prudent man;—whence, indeed, the law directs that the race of prophets (or interpreters) should preside as judges over divine predictions,—whom some indeed call diviners, through entire ignorance that they are only the representers of enigmas and visions, and not at all entitled to be called diviners,—being, strictly speaking, interpreters of prophecies.

The liver then was constructed for this purpose, and seated where we have mentioned, for the sake of prediction. And besides, in every living individual, this organ gives forth unusually clear indications; but in those deprived of life, it becomes blind and delivers oracles too obscure for their meaning to be made intelligible. The nature and position of the intestines, again, which is next to it [the liver], is on the left side, for the purpose of always, like a sponge,* keeping it clean and bright, ready to reflect images; on which account, therefore, when certain impurities are produced in the liver by bodily disease, then the spleen, by its rarity, receives and purifies them all, from being of a hollow and bloodless texture;—and hence, is it, that when filled with unclean matter, it grows to a large size and becomes wholly unsound. And again, when the body is purified, it subsides into its natural condition, as before.

XLVIII. As respects the soul, then, including both its mortal and divine portion, in what way it existed, and in what way and why it was consigned to a separate habitation, the truth can be firmly established only by the consent of the Deity:—still, that we have stated what is near the truth, we will now, quite open to investigation, venture the assertion; and here accordingly it is made.† And what next follows we must treat in a similar manner; and this is no other, than how the rest of the body was produced. It is, therefore, in the most eminent degree becoming that they should be composed as fol-

* Gr. *ἐκμαγεῖον*,—very wrongly rendered by some, *a mirror*,—the error of which was first shown by Barker in No. xlvi. of the Class. Journal, p. 201.

† Gr. *τό γε μὴν εἰκὸς ἡμῖν εἰρῆσθαι καὶ νῦν καὶ ἔτι μᾶλλον ἀνασκοποῦσι διακινδυνευτέον τὸ φάναι, καὶ πεφάσθω.*

lows:—Those who formed our race were aware, that we should be intemperate in eating and drinking, and that through madness we should use far more than is either necessary or moderate. For fear then of rapid destruction induced by disease, and lest our mortal race should perish without fulfilling its end,—to provide against this, the gods formed for the reception of the superfluous food a receptacle beneath, called *a belly*, and formed in it the convolutions of the intestines to prevent the food from passing so quickly as to require fresh and rapid supplies of nutriment for the body, and so by insatiable gluttony making our whole race unphilosophical and unmusical, insubordinate to the most godlike part of our composition.*

XLIX. The nature of the bones and flesh, and other parts of this kind, was constituted as follows:—The first principle of all these is the generation of the marrow; for the life-bonds of the soul that united it with the body being herein woven together, constitute the foundation of the mortal race. The marrow itself, however, has a different origin; for among the triangles, those of the first order, that are unbent and smooth, were specially adapted by their accuracy for producing fire and water, air and earth:†—these the Deity, separating each apart from its own class, and mingling them together in fixed proportions, composed by these means an all-varying mixture of seeds for the whole mortal race, and from these produced the marrow;—and he afterwards implanted this marrow, binding therein the various classes of souls; and as respects the number of figures and what individual forms the marrow was to receive, he divided it, both as regards the quality and quantity of the particles, at the original distribution,—giving to that part of it which was to be the field for containing the divine seed a completely globular shape; and this he called the *brain*, because in every

* The intestines are not, as Plato seems to think, solely destined to receive the excess of food. It is in the stomach that digestion commences, and it ends in the intestines, from which the chyle produced from the food is sent to the lungs to form blood. Aristotle's ideas on this point are more correct. Hist. Anim. iii. 14.

† Respecting these triangles, see ch. xxviii., and further on at ch. lxii. They are in fact the primary atoms, of which the body is composed, and are of different classes, according to the parts or organs of which they are the components.

animal that has arrived at its perfect form, the vessel containing this substance is called the *head*.* But as respects the part destined to contain the remaining and mortal part of the soul, to this he gave both round and oblong shapes, giving to the whole the name of *marrow;* and from these, as from anchors, casting the bonds of the entire soul, he built around it our whole body, after first fixing round it a complete covering of bones.

L. The bones he composed as follows:—Having sifted pure and smooth earth, he mingled and moistened it with marrow; and after this he placed it in fire, then plunged it in water, once more placed it in fire, and after this dipped it in water: and thus by frequent transfers of each, he made it insoluble by either. With this bone, then, he fashioned a sphere, as on a lathe, placing it round the brain, and only leaving a narrow hole therein. At the same time also he formed of the same substance certain vertebræ about the marrow of the neck and back, extending them like hinges, from the head downwards through the whole trunk;—and thus he preserved all its seed, by fortifying it round with a stony covering,—forming in it joints also, for motion and flexion, employing the power of difference in their formation, as being possessed of a certain middle quality.† Then, considering that the bone would have a tendency to become dry and inflexible, and that when heated and again cooled, it would become carious, and quickly corrupt the seed it contained, he on this account formed the sinews and flesh; that the former, by binding all the parts of the body, and being stretched and loosened about the vertebræ, might give the body a facility for either flexion or extension, as occasion required; while the flesh would serve as a covering from the heat and defence from the cold;—as likewise for a protection against falls, in the same manner as cushions do it, by gently and easily yielding to external bodies:‡ and he implanted in it also a hot moisture, which perspires in sum-

* There is a play here on the words *κεφάλη* and *ἐγκέφαλον*, which cannot be translated.

† Gr. *τῇ θατέρου προσχρώμενος ἐν αὐτοῖς, ὡς μέσῃ ἐνισταμένῃ δυνάμει.* Comp. a similar passage in the succeeding chapter.

‡ Gr. *ἔτι δὲ πτωμάτων οἷον τὰ πιλητὰ ἔσεσθαι κτήματα.* A similar idea is nearly similarly expressed by Longinus, xxxii. sect. 5. *τὴν σάρκα οἷον πιλήματα προθέμενοι.*

mer, and gives forth an external dew, to impart a coolness to the whole body,—and again in winter, gently keeps out by its own fire the cold brought from without.

LI.—Our plastic Creator, reflecting on all this then, mingled and united water, fire, and earth, gradually mixing therewith a ferment of acid and salt;*—and thus he composed a pulpy, soft flesh:—And as for the tendons, he formed them of a mixture of bone and unfermented flesh, so as to have the properties of both, tinging them also with a yellow colour. And on this account is it, that the tendons are firmer and more viscous than the flesh, but softer and moister than the bones. With these God bound together the bones and marrow, afterwards enshrouding the whole of them with the covering of the flesh. Such of the bones, then, as were most ensouled, he covered with the smallest quantity of flesh, —such as were least so, with the most and the densest flesh. And besides this, except where reason evinced the need of the contrary, he placed only a small quantity of flesh on the joints of the bones; lest they should make the body uneasy by impeding its flexions and motion; or else, from being many and frequent, and strongly pressed together, cause by their solidity a dulness of perception, imperfection of memory, and a sort of intellectual blindness. On this account then, the bones of the groin, legs, loins, the shoulders and the arms from the elbow to the wrist, and such other parts of our bodies as have no joints, and such inward bones as have no thought, owing to the scarcity of soul in the marrow, are fully provided with flesh;—whereas those that have thought, he covered with less, except the flesh were for perception, as in the case of the tongue. In other respects, the case is as we have described. For a being born and nurtured under necessity,† does not receive a hard bone united with plenty of flesh, and with it also a quickness of sensa-

* Gr. ἐξ ὀξέος καὶ ἁλμυροῦ ξυνθεὶς ζύμωμα καὶ ὑπομίξας αὐτοῖς, σάρκα ἔγχυμον καὶ μαλακὴν ξυνέστησε. Plato here alludes, however, not only to the σάρκες or muscular fibre, but to the whole cellular tissue and integument that form a general covering and defence for the entire body. The word νεῦρον in the succeeding sentence refers not to the pulpy, delicate fibres now called by that name, but to the tendons and ligaments that hold an intermediate position between flesh and bone.

† Plato here alludes to the soul of man, which is said to be generated and composed by necessity in consequence of its union with the body.

tion. And yet the head would have been thus constructed, if the two had exercised any will in thus coalescing; and the human race, having a fleshy, tendinous, and robust head, would enjoy healthy and unmolested a life twice as long as the present, or even yet longer than that: but the artificers of our race, after thoroughly considering whether they had better make it more lasting and of worse condition, or shorter but of a more excellent character, were agreed that a shorter but better life was wholly preferable to one longer, but inferior:—and this was why they covered the head with a thin bone, and not with flesh and fibre,—because it had no joints. On all these accounts, then, the body was provided with a head, which was the more perceptive and reflecting, in proportion as it was [physically] weaker than all the rest of man's structure. From these causes, then, and in this manner,* the Deity placing tendons round the lower extremity of the head, glued them, as it were, round the neck, and bound with them the lofty cheek-bones placed under the forehead;—and as for all the rest, he scattered them through all the members, connecting joint with joint.

LII.—We were next provided by those who formed us with the organs of the mouth, teeth, tongue, and lips,—arranged as they now are for purposes both necessary and the best; giving ingress for necessaries, and egress to what is best,—everything, indeed, that enters to feed the body being necessary—while the stream of words flowing outwards, if guided by wisdom, is by far the fairest and best of all streams whatever.

LIII.—Again, it was not possible that the head could bear a mere covering of thin bone, owing to the extremes of the different seasons; nor again, could it be allowed to become clouded, blind, and unperceptive, through the overcrowding of flesh. Hence a fleshy membrane, not dried, was left separate from the rest,—that now termed cuticle (or scalp). This, then, being brought into union with itself by the moisture about the brain, grows around and circularly invests the head. And it is the moisture flowing under the sutures that moistens this membrane, and causes it to close at the crown, connecting it as in a knot. But as for the ever-varying classes of

* Gr. ἐπ' ἐσχάτην τὴν κεφαλὴν περιστήσας κύκλῳ περὶ τὸν τράχηλον ἐκόλλησεν ὁμοιότητι, &c.

sutures, these are generated through the power of the periodic changes caused by nutriment in the flesh;* the variety becoming greater, when they struggle with each other more violently—less so, when less violently. All this membrane the Divine Being pierced all round with fire:—and hence, as it was wounded, and the moisture externally flowed through it, all that was pure of the moisture and heat was carried off, while that which was mixed, and of a nature allied to that of the membrane itself, being raised by the motion, was stretched outwards to a great size, having also a tenuity equal to the amount of puncture,—whereas, on the other hand, when continually thrust back through the slowness of its motion by the spirit surrounding it externally, it again revolves under the membrane and there becomes firmly rooted. And owing to these affections is it, that the hair springs up on the membrane of the head, being naturally allied, and serving as a rein to this membrane, but at the same time becoming harder and denser through the pressure of the cold, which hardens each hair, as it proceeds beyond the skin.† Thus, then, by the means above mentioned, did our Creator plant the head with hairs, reflecting at the same time that instead of flesh a light covering was needed to guard the brain, and give it shade and protection from the extremes of heat and cold without hindering its acuteness of sensation.

LIV.—But the mass of tendon, skin, and bone that is interwoven about the fingers, being a mixture of three substances, becomes, when dried, one common hard membrane composed of all in common—fashioned indeed with these as instrumental causes, but effectively produced by that reflection which ever has an eye to the future:—for those who formed us well knew, that women and other animals would some day

* So we have ventured (taking it as a case of ἓν διὰ δυοῖν) to render the words διὰ τὴν περιόδων δύναμιν καὶ τῆς τροφῆς. These *periods* are certain changes caused from time to time in the flesh by the motion of its particles, both solid and fluid,—and this owing to the constant supplies of food. A notion very much resembling it has been propounded by modern physiologists.

† The meaning of the sentence seems to be, that the whole *cutis* or scalp of the head was perforated by fire, and through the holes thus formed, there issued certain delicate streams of fluid which were hardened into fibre, as they rose above the skin and encountered the pressure of the external atmosphere.

be generated from meu, and that nails would be of the greatest use in several respects to many of the animals:—and this was the reason, why they stamped in men the pattern of the nails at their first birth. It was from these causes, then, and with these intentions, that they implanted skin, hairs, and nails at the extremities of the limbs.

LV.—As the parts and members of the mortal animal however were all allied in nature, and their life necessarily resulted from fire and spirit, the decay and exhaustion of which would cause it to perish quickly, the gods provided for it the following remedy:—Intermingling a nature resembling that of man with other forms and senses, they planted as it were other animals,—such as kindly-disposed trees, plants, and seeds, which are made useful to us by the nurture and training of agriculture; though before there were only those of a rustic kind, which are more ancient than those that are cultivated.* Everything indeed that partakes of life we may justly and most correctly call an animal; —but that in particular, of which we are now speaking, is possessed of the third species of soul,† which we place between the midriff and the navel: and which has no share either in opinion, reason, or iutellect, though possessing a sense of pleasure and pain, as well as desire. It effects all things indeed by passion (or appetite); and it does this by the evolution of its internal power and the employment of its own motion to the exclusion of every other, as it has not been formed with a nature capable of reasoning on its own concerns.‡ It thus lives in no way different from an animal, except in being firmly rooted in a fixed position and deprived of original motion.

* The question, whether plants are a distinct kind of animals, which was held by all the Platonic philosophers, is touched on by Plutarch, De Plac. Philos. v. 26, sect. 10, and by Cicero, Tusc. i. 26, where he remarks:—"*tam naturæ putarem hominis vitam sustentari, quam vitis aut arboris:—hæc enim etiam dicimus vivere.*

† *I. e.* τὸ ἐπιθυμητικόν.

‡ What Plato here means, seems simply to be, that it is by turning in and about themselves; that is, by growth, without locomotion, that plants develop the perfection and beauty of their nature, without being in any way obliged for their origin or nature to the objects by which they are surrounded. The phrase στραφέντι αὐτῷ ἐν ἑαυτῷ περὶ ἑαυτό is somewhat difficult, but is explained by a sentence in the Theætetus (p. 181, c.), where ἀλλοίωσις is also used to express the contrary notion.

LVI.—Now after the directing artificers of our structure had implanted all these organs for giving nutriment to our inferior nature, they directed various channels through our body, so as to water it like a garden, by the constant accession of flowing moisture.* And first, they cut two hidden channels beneath the juncture of the skin and flesh, viz. two veins going down the back to correspond with the double figure of the body, both on the right and left sides. These they placed close to the back-bone, so as to receive between them the marrow, the growth of which might be thus promoted, and that the flood supplied thence to other parts, might give an equable irrigation;—and then, dividing the veins about the head, and mutually interweaving them, they distributed them in opposite directions,—inclining some from the right to the left of the body, and some from the left to the right, that there might be a chain formed by the skin to unite the head to the body, there being no interlacing of tendons round the head,—and besides this, that the affection of sensation might from each of these parts pass round and through the body. It was in some such way as this, then, that they prepared the channel, of which we speak; and its truth we shall easily perceive by assenting to our previous position,—that all things composed of greater parts may envelop such as are less, while those consisting of less cannot envelop the greater. But fire is, of all classes of things, composed of the smallest parts; and hence it penetrates through water, earth, and air, and their several compounds, —and this to such an extent that nothing can retain it. The same remark is true of our belly, which is able to retain any food that has been introduced, but cannot hold spirit and fire, because they consist of smaller particles than those composing the belly.

LVII.—These channels therefore the Deity employed for the purpose of distributing moisture from the belly into the veins, by weaving with fire and air a network resembling

* This passage is well illustrated by Longinus, xxxii. sect. 5, where he is illustrating the power of metaphor:—*τῆς δὲ τροφῆς ἕνεκά, φησι, διωχέτευσαν τὸ σῶμα, τέμνοντες ὥσπερ ἐν κήποις ὀχετούς, ὡς ἔκ τινος νάματος ἐπιόντος, ἀραιοῦ ὄντος αὐλῶνος τοῦ σώματος, τὰ τῶν φλεβῶν ῥέοι νάματα.* A very similar passage occurs in the Timæus Locrus, p. 101, c., p. 437 of vol. vii. in Stallbaum's edition of Plato's works.

basket-nets (or weeds), with two curved passages of entrance, —one of which he again twisted and divided into two branches, winding the continuations of these curved passages like coils of rope in every direction as far as the ends of the net. Now all the inner parts of the network he composed of fire, but the great flexures and the receptacle itself of air;—and lastly, he took and placed them in the new-formed animal, as follows. One of the curved passages he placed in the mouth; but, as this part has two flexures, he caused one (*i. e.* the trachea) to pass along the arteries into the lungs, the other (*i. e.* the œsophagus) by the side of the arteries into the belly. The other curved part he divided into two separate passages, making them pass in common to the channels of the nose, so that when the one does not reach the mouth, all the streams of the other might still be filled from this. But as for the remaining part of the hollow network, he made it extend all over the concavity of the body, and the whole of it flow gently together into the curved passages, as being of an airy texture, and at another time to flow through them backwards. But the net, which is of a thin structure, he so disposed as to make it penetrate through and again emerge.* Besides this, he ordered that the interior rays of fire should follow in constant succession, the air at the same time passing into each, and that this should never cease to be the case, as long as the mortal animal's life continued. And as respects the name of this kind of motion, we call it expiration and inspiration. Now this whole action and affection that it produces in our nature, is caused by certain bodily moistenings and coolings, alike conducive to our nutriment and life:—for as the breath passes in and out, an interior fire attends it in its course; and when it is diffused through the belly and meets with solid and liquid food, it reduces them both to a

* The whole of this description refers to the œsophagus, which enters the upper part of the stomach, and runs side by side with the trachea, which divides to form the entrance to the two great cells of the lungs. This division is no doubt that of one of the ἐγκύρτια, which, it is said, God διέπλεξε δίκρουν, and then subdivided it into the numerous bronchial tubes that ramify in all directions over the surface of the lungs, *i. e.* διὰ παντὸς πρὸς τὰ ἔσχατα τοῦ πλέγματος. It may also be added that in the mouth are two passages leading up to the channels of the nose. The meaning is exceedingly obscure; but the reader is referred to Stallbaum and Martin for several long explanatory notes on this curious account.

state of moisture, and by dividing them into very small parts, carries them along in its course; pouring them, as from a fountain, into the veins, and so cutting channels through the body as through an aqueduct.

LVIII.—But again let us consider the affection of breathing, and investigate the causes which gave it its present nature. We should reason on it, therefore, as follows:—As there is no such thing in nature as a vacuum into which a moving body can enter, and as breath passes from us outwards, every one is aware that it cannot escape into void space, but must thrust out whatever is nearest; again, that the body must always repel that ever nearest, and that from a necessity of this kind, everything impelled into the place vacated by the emitted breath must, after entering and filling up this space, attend on the breath as it travels. And all this must take place like the revolution of a wheel, through the impossibility of a vacuum. Hence, the breast and lungs, after dismissing the breath outwards, are again inflated by the entrance of the air surrounding the body into aud around the cavities of the flesh. And when the air is again sent outwards and flows round the body, it drives the breath inwards through the mouth and nostrils.

LIX.—And as regards the cause from which they derive their origin, we may propose the following. In every animal in the universe those of its internal parts are the hottest which surround the veins and blood, just as if they contained a fountain of fire;* and this heat we compared to a bow-net, extending through the middle of the body, and woven wholly of fire; all outside of it being composed of air. Yet heat, it must be agreed, naturally proceeds outward into a region with which it is allied. But as there are two passages for the heat,—one through the body outwards, the other again through the mouth and nostrils; hence, when the breath is impelled towards the latter, it in turn repels that latter. But that which is drawn into the fire becomes heated by so falling, while what is exhaled becomes cooled;—and so, owing to the change of temperature, they pass again into their former condition, whether hot or cold, through the mutual repulsion of

* Gr. *πᾶν ζῶον αὐτοῦ τάντος περὶ τὸ αἷμα καὶ τὰς φλεβὰς θερμοτάτας ἔχει, οἷον ἐν αὐτῷ πηνήν τινα ἐνοῦσαν πυρός.* The common reading has *πάντως*, instead of *τάντος*, and *θερμότητα* for *θερμοτάτας*.

each other; and as the same influence is constant and mutually operating, its circular agitation gives birth to the expiration and inspiration of the breath.

LX. To the same causes may we ascribe the impressions produced by medical cupping-glasses, by swallowing drink, by the violent hurlings of bodies, whether upwards or on the ground, together with such sounds as appear swift or slow, sharp or flat,—and which at one time are discordant, owing to the dissimilitude of the motion which they cause within us, and at another harmonize, through the similitude of that motion. For the slower sounds catch up those antecedent and swifter, because the latter slacken their pace to one like their own; and by so following the swifter, they still urge them onward,—though without disturbing the motion by introducing another, but making their slower rate to approach gradually to that of the swifter;—and this mixed impression from the sharp and flat (*i. e.* the quick and slow) forms a single note; whence results the pleasure felt even by the unwise, but really entertained by the wise, which is owing to the imitation of Divine harmony that exists in mortal motions.* And, indeed, with respect to all the motions of water, the fallings of thunder, and the wonderful circumstances observed in the attraction of amber, and the Herculean stone,†—in all these, no real attraction takes place at all; but as a vacuum can nowhere be found, the particles are mutually impelled by each other; hence, as they all individually, both in a separate and mingled state, have an attraction for their own proper seats, it is by the mutual intermingling of these affections, that such admirable effects present themselves to the view of the accurate investigator.

LXI.—It is specially owing to this cause, that respiration (whence our discourse originated) is generated; and after the manner that we have before shown;—namely, that as fire divides the food and rises internally to attend on the breath,

* Comp. ch. xviii. and xx. with Republ. vii. ch.12, where the harmony of the soul is treated more at length. See also Martin, ii. p. 339.

† This is a very memorable passage, and clearly shows that Plato was not only well acquainted with the doctrine of attraction and repulsion, but was of opinion also that the law of repulsion depended on the congregation of similar elements throughout all nature. The whole matter, however, is largely treated by Plutarch in his sixth Platonic Dissertation, vol. ii. p. 1004, ed. Par.

the veins from the belly become filled by this joint elevation, in consequence of drawing thence the divided portions of the food; so that by these means, through every animal body the streams of nutriment are abundantly diffused. But the parts which are recently cut apart and separated from their kindred natures,—some of them fruits and others grasses, and produced by the Deity for bodily food, acquire varieties of colour through their mutual admixture; though for the most part the red predominates,* as its nature consists of fire combined with a lump of moist mud. Hence also the colour of that which flows about the body is just what it seems, and is also called *blood*, being the nurturing principle of the flesh and whole body; and so by everywhere diffusing its moisture, it copiously replenishes all the exhausted parts.

As for the manner of impletion and depletion, it is produced in the same way as the change of everything in the universe; viz. from the circumstance of all kindred natures having a common attraction:—for the natures with which we are clothed externally, are perpetually melting and being distributed, each form of matter departing to that with which it is allied. But the particles of blood which are contained in, and distributed throughout our bodies, as is the case with every animal created under heaven, necessarily imitate the motion of the universe. Each, therefore, of the divided parts within us, being borne along to its kindred nature, again replenishes what is void. But when the decretions exceed the accessions, the whole animal falls into decay; but in the contrary case, it acquires growth.

LXII.—The new composition therefore of every animal, as it has new triangles, [*i.e.* elementary principles,] formed as it were from fresh timbers, causes them to lock closely within each other,—the whole of its bulk being of a delicate structure, formed of fresh marrow and fed on milk. Those triangles, therefore, that compose the bodily aliment, having entered it from without and been received into the animal, from being older and weaker than the simple original triangles therewith agreeing, are overpowered and destroyed by the new triangles; and the animal grows to a large size, because it is

* Respecting the origin of the colour *red*, comp. ch. xlii. Galen thus speaks of this opinion about the blood (vii. ch. 159)—*τὴν ἐρυθρὰν χρόαν γεννᾶσθαί φησι ἐν τῷ αἵματι διὰ τὴν τοῦ πυρὸς ἐξόμοιξιν.*

supplied from a multitude of similar parts. But when the root of these triangles is relaxed by fatigue and dulness, brought on by the repulsion of many particles during a long period of time, then the food received can no longer cut into its own similitude; but they are themselves easily separated by the bodies that enter from without. Overcome by this, the whole animal at length decays; and this state is what we call old age:—and at last, when the jointed chains of the triangles about the marrow can no longer hold, but through long employment get unfastened and set free the bonds of the soul,—the soul thus loosened naturally flies off with pleasure and delight; for everything contrary to nature is painful, while the natural is pleasant. Hence the death caused by wounds and disease is painful and violent,—while that which follows old age, as the end agreeable to nature, is of all deaths the least irksome, and attended rather by pleasure than pain.*

LXIII.—As to the origin of diseases, that must be obvious to every one:—for as there are four component elements of the body, viz. earth, fire, water, and air, the unnatural overabundance or defect of these, and their removal from their own to a different position,—those of fire, we mean, and the other classes, for there are more than one,—these are the causes why they do not each receive what suits their peculiar nature, and they necessarily produce disturbances and diseases: for as these are severally generated and transferred in a way contrary to nature, such things as were formerly heated become cold, what were once dry moist, the light heavy—all things, in short, undergo all possible mutations. For we assert that it is only when the same thing approaches to and departs from the same in the same manner and according to analogy, that it will allow what is the same with itself to abide in health and safety: and should any of them be in discordance, whether approaching or departing, it will cause all varieties of alienations, as well as unnumbered diseases and corruptious. But having now found the second set of conditions suitable to nature, the second mode of considering diseases also

* It is this kind of death of which he speaks in the Georgics (p. 524)—*ὁ θάνατος τυγχάνει ὢν οὐδὲν ἄλλο ἢ δυοῖν πραγμάτοιν διάλυσις, τῆς ψυχῆς καὶ τοῦ σώματος ἀπ' ἀλλήλων.* Comp. also Plutarch, De Plac. Phil. v. sect. 24, where he records also the opinions of many others on the same topic.

is now open to any one desirous of so doing.* For as the marrow, bone, flesh, and sinew are composed of those [elements,] as likewise the blood in another way, though from a similar origin, so also most other diseases owe their severity to the causes we have mentioned; though the greatest of them are to be traced to the following cause:—When the generation of these various [bodily substances] takes place inversely, then they become subject to corruption:—for the flesh and sinews are naturally formed from blood,—the sinews indeed from fibres, through the connexion between these, but the flesh from its union with that which when in a separate state becomes solid:—while the glutinous and fatty substance again which is formed from sinews and flesh, at once unites† the flesh to the bone, and itself feeds the growth of the bone itself, with which the marrow is surrounded. And again, that which filters through the solid part of the bones, being the purest kind of the triangles, as well as most smooth and unctuous, moistens the marrow by falling drop by drop from the bones.

LXIV.—When these several things are the case, health mostly ensues; but when the contrary happens—disease. For when the flesh becomes liquefied and sends back what it loses into the veins, then the blood mingled with spirit flows abundantly, and of all kinds, through the veins, with different degrees of colours and bitterness;‡ and yet further, from its acid and salt qualities, it generates all kinds of bile, lymph, and phlegm;—for as they are all generated and corrupted in an opposite way, they first of all destroy the blood itself;§ and the fluids that can no longer afford nutriment to the body, are borne along the veins without any natural order

* He now proceeds to consider the second cause of diseases—from the deprivation of the compound substances of the body,—blood, bile, flesh, marrow, &c., which can easily be comprehended, says he, by those who have followed him in his speculations on the first.

† The old reading was πολλά; but the best MSS. have κολλᾷ.

‡ Gr. πικρότητι. The old editions read πυκνότητι ποικιλούμενον.

§ What he here means is—that the health of the body mainly depends on the state of the blood; and on this principle chiefly he explains the causes of diseases, which arise from the corruption of the humours caused by the disturbed state of the body, bringing also a taint on the blood;—and hence it must follow that the general health becomes impaired, because the blood runs through the veins, diffusing through the body its vital nutriment.

of circulation; at variance, indeed, with each other, because they derive no mutual advantages from the properties of each, but [positively] hostile to the constitution of the body, and its maintenance in health,—in short, destroying it and bringing it to putrefaction.

Such, therefore, of the flesh as becomes liquefied by its great age, being indisposed to putrefy, grows black from long burning; and from having been entirely macerated it becomes bitter, and falls into discontent with the other parts of the body not yet infected with corruption. And then, indeed, instead of bitterness, the black part assumes an acidity, if the bitter becomes more attenuated: but when the bitterness is tinged with blood, it becomes still redder; and when mixed with black, it assumes the nature of bile:—and yet further, to the bitterness is added a yellow colour through the melting of new flesh on the fire surrounding the flame. And this common name for all these some of the physicians assigned them,—or at any rate some who were able to consider many things dissimilar, and to detect in a single class a great number of particulars all deserving a special name. But all else that may be called kinds of bile, receive, according to colour, a name peculiar to each. As for *lymph* (ἰχωρ), the whey of the blood, it is gentle and mild: while the sediment of black, acid bile, is fierce and wild;—and when mingled by heat with anything of a saline quality, it is called *acid phlegm*. Again, the moisture running from new and tender flesh mingled with the air, which is afterwards inflated and enclosed by moisture, produces bubbles, which separately are invisible, owing to their small size, but when collected in a large bulk become visible, and acquire a white colour from the generation of froth. And all this liquefaction of delicate flesh, when woven together with spirit, we term *white phlegm*, —the sediment of recent phlegm, *tears* and *sweat*; together with all such secretions that the body sends forth for its purification.

LXV.—All these indeed become the instruments of disease, when the blood is not supplied naturally from liquid and solid food, but gains bulk from contraries in violation of the laws of nature. When any part of the flesh therefore becomes separated by disease,* letting its first principles

* ὑπὸ νόσων, omitted in the old editions, has been restored on the authority of several of the best MSS.

remain, half the trouble is removed; for it admits of an easy recovery. But when that which binds the flesh to the bones becomes diseased, and the blood flowing from the fibres and sinews no longer serves as food to the bones and a bond to the flesh, but, instead of being fat, smooth and glutinous, becomes rough and salt from being parched by bad diet; then, in consequence of suffering all this and being separated from the bones, it is itself crumbled down* under the flesh and sinews;—while the flesh falling at the same time from its roots, leaves the sinews bare and saturated with salt; and thus, entering once more the circulation of the blood, it increases the number of the aforesaid maladies. And if these bodily ailments be severe, still more afflicting and troublesome are those that precede them; when the bone, owing to the density of the flesh, does not allow sufficient respiration, but becoming heated through rottenness, falls into decay, and will receive no nutriment, but on the contrary gradually crumble away,—bone falling on flesh, and flesh again on blood, diseases being by these means produced that are of a severer character than the former. By far the worst of all maladies however is,—when the marrow becomes diseased through some defect or excess;—because it is then productive of the most vehement and fatal diseases, the whole nature of the body being necessarily reversed and destroyed.

LXVI.—Again, as to the third species of diseases, we ought to consider them as divided into three classes,—one produced by spirit, a second by phlegm, and a third by bile. For when the lungs, the great guardian of the breath, through being obstructed by defluxions,† will not allow a free passage to the breath, which thus has no egress one way, and in another enters in larger supplies than it ought, those parts which are not cooled by it become putrid, while those that receive too much of it, passing violently through the veins, distort them and become liquefied, being shut out with the diaphragm in the middle of the body: and thus ten thousand severe ailments hence arise, together with an abundance of sweat. And frequently, when the flesh becomes separated within the body, breath is produced, which not finding

* Gr. *καταψήχεται*. The old editions have *καταψύχεται*. The same observation applies to *καταψηχόμενον*, a few lines lower down.

† Gr. *ὑπὸ ῥευμάτων φράχθεις*, obstructed by discharges of phlegm.

escape externally, causes the same torments as the breath entering from without. The greatest pains that it produces, however, are, when it surrounds and swells out the sinews and neighbouring veins, stretching and distorting the tendons and sinews continued from the back. Now these diseases, from their disposition to extension, are termed tensions and contortions from behind,* — the cure of which it is difficult to find; because fevers supervene and generally bring them to a close. But the white phlegm, when it becomes troublesome through the formation of air-bubbles, being shut out by having breathing-vents outside the body, is of a milder kind, and variegates the body with white spots, generating other diseases also of a similar character. But when mingled with black bile, and dispersed about the most divine circulations of the head, it acts as a disturbing agent, though with less violence during sleep; but if it come to those who are awake, it cannot be expelled without difficulty; and as this is a disease of a sacred nature (or organ, *i. e.* the head), it is most justly called sacred.† An acid and salt phlegm again is the source of all those diseases which are produced by a defluxion of humours: and because the places into which this phlegm flows are of infinite variety, it produces all kinds of diseases. But whatever parts of the body are said to be inflamed, all become so from being burnt and inflamed by bile.

LXVII. Now this bile, whenever it makes an expiration, boils and sends up all kinds of tumours, and when inwardly restrained, generates many inflammatory diseases,—but the greatest of all, when mingled with pure blood it disturbs the order of the fibres, which are scattered in the blood for this purpose,—namely, of giving it certain measures of tenuity and

* Gr. *ἃ δὴ καὶ ἀπ' αὐτοῦ τῆς ξυντονίας τοῦ παθήματος τὰ νοσήματα τέτανοί τε καὶ ὀπισθότονοι προσερρήθησαν.* Galen describes the *τέτανος* as a distension or convulsion extending equally over a considerable part of the body;—but it appears to be a generic term also, of which *ὀπισθότονος* and *ἐμπροσθότονος* are species,—one extending over the hinder, and the other over the forepart of the body. Celsus explains it as *nervorum rigor*;—and it seems, in fact, to be an involuntary retraction, in a contrary direction to the muscles.

† *Epilepsy*, however, was what the ancients usually termed the *sacred disease*, because it was supposed to be sent by the anger of the gods, and could only be assuaged or removed by incantations and other sacred ceremonies.

density, and that it may neither through heat (as being moist) flow from the thin body, nor from its density become unadapted to motion, and so experience difficulty in flowing back in the veins. The just temperament, then, of these things is under the natural guardianship of the fibres; because if any one collects them together in the blood when dead and in a state of coldness, all the remaining blood becomes diffused; and when let out quickly, it coagulates in consequence of the cold surrounding it. The fibres possessing this influence over the blood, the bile, which is of the nature of ancient blood, and again changed into it from flesh by liquefaction, first gradually falls in a warm, moist state, and becomes coagulated through the power of the fibres; though when coagulated and violently extinguished, it causes a tempest and tremor within. When it flows with still greater force, it overcomes the fibres by its own proper heat, and by its ebullition drives them into disorder;* and if it retains its prevalence to the end, it penetrates into the marrow, and burning the bonds of the soul, as if they were the cables of a ship, dissolves their union, and sets it wholly free; but, on the other hand, when it flows less abundantly, and the body on becoming liquefied opposes its passage, it then, on finding itself overcome, either escapes through the whole body, or being driven through the veins into the upper or lower belly, escapes from the body like a fugitive from a seditious city, and introduces defluxions, dysenteries, or gripings of the intestines, and all diseases of a similar kind. When the body, therefore, is unusually diseased by an excess of fire, it then labours under *continued* burnings and fever; but when through excess of air, under *quotidian* fevers: under *tertian* through water, because water is less active than fire and air; and under *quartan*, through excess of earth;—for earth, being of all of them the least active, becomes purified in quadruple periods of time, and hence introduces quartan fevers, which are with difficulty dispelled.†

LXVIII. In the above manner are the diseases of the body

* Gr. εἰς ἀταξίαν ζέσασα διέσεισε. The old editions have διέσωσε, which makes against the context.

† Martin has taken great and successful pains to point out the surprising sagacity of Plato's conjectures on the causes of disease. His notes on the subject are well worthy of on attentive perusal.

produced; bnt the diseases of the soul, resulting from the habit of the body, are as follows. We must admit that the disease of the soul is folly, or a privation of intellect; and that there are two kinds of folly; the one madness, the other ignorance. Whatever passion, therefore, a person experiences that induces either of them, must be called a disease. Excessive pleasures and pains, however, are what we should deem the greatest diseases of the soul:—for when a man is over-elevated with joy or unduly depressed with grief, and so hastens immoderately either to retain the one or fly from the other, he can neither perceive nor hear anything properly, but is agitated with fury, and very little capable of exercising the reasoning power. But he who possesses a great quantity of fluid-seed about the marrow, and is by nature like a tree over-laden with fruit, such a one having many throes,* and also many pleasures in his desires and their attendant offspring,—being maddened too during most of his life by the greatest pleasures and pains, having a soul also rendered morbid and unwise by the body, is wrongly deemed to be—not diseased, but voluntarily bad.† In trnth, however, sexual intemperance generally becomes a disease of the soul, through a particular state of fluidity and moisture caused by the tenuity of the bones. And indeed it may almost be asserted, that all intemperance in any kind of pleasure, and all disgraceful conduct, is not properly blamed as the consequence of voluntary guilt. For *no one is voluntary bad:* but he who is depraved becomes so through a certain bad habit of body and an ill-governed education; and to every one these are inimical, as they result in a certain evil. And again, in the matter of pain, the soul suffers much depravity through the body. For where acid and salt phlegm, and likewise bitter and bilious humours, wandering through the body, get no external vent, but revolve inwardly, and mingle their exhalations with the circulation of the soul; they in this case produce within it aninfinite variety of diseases, greater or less in degree,—more or less in numbers. They are introdnced, indeed, to three seats of the soul; and according to the diversity of the place, each begets

* The old editions read *ὀδύνας*, not *ὠδῖνας*.

† This is quite according to Plato's well-known doctrine—*οὐδεὶς ἑκὼν κακός*, as he explains it below, and in the Republ. ix. p. 589, c.; Protagoras, p. 345, e.

every variety of difficulty and sorrow, rashness and timidity, and still further of oblivion and indocility. Besides this also, the vicious manners of cities, and discourses both private and public, often contribute to increase this malady; nor are any branches of learning taught in early life which tend to serve as remedies for such mighty ills;—and thus all the vicious are vicious through two most involuntary causes, which we should always ascribe rather to the planters than the things planted, and to the trainers rather than those trained; but still it should be our anxious endeavour, as far as we can, by education, studies, and learning, to fly from vice, and acquire its contrary—virtue. These particulars, however, require another mode of argument.

LXIX. Again, as respects the contrary of these, it is quite fit and proper to explain concerning the cultivation both of the body and the intellect, by what means each is to be healthfully preserved. For it is more just to take account of good things, rather than of the evil. Now every thing good is beautiful; and the beautiful is not without measure:—an animal therefore destined to be such, must possess symmetry. Of symmetries, however, we perceive and understand those which are small; but as for the greatest and most important, of these we are quite ignorant. For indeed, no symmetry or want of measure is of more importance with respect to health and disease, virtue and vice, than that of the soul towards the body:—and yet into these we make no inquiry, nor do we reflect that when a weaker and inferior form is the vehicle of a strong and every way mighty soul, and when on the contrary these two pass into a state of compact union, then the animal is not wholly beautiful; for it is without symmetry in the most important points of symmetry, while an animal of opposite character is the fairest of all sights that can be beheld. Just therefore, as a body has immoderately long legs, or indeed any other superfluity of parts that hinders its internal symmetry, it at once becomes base, in the participation of labour suffers many afflictions and many convulsions, and through suffering an aggregation of accidents, becomes the cause to itself of innumerable ills. The same too must be understood concerning that compound essence [of body and soul,] which we term an animal;—as, for instance, when the

soul in this compound is stronger than the body, and greatly prevails over it, then [the soul,] agitating the whole of it inwardly, fills it with diseases; and, by ardent application to learned pursuits and investigations, causes it to waste away. Lastly, when the soul employs itself in didactic pursuits and logomachies, publicly as well as in private, through a certain ambitious strife, it then inflames the body and dissolves its constitution, and by introducing distillations of humours, deceives the great part of those who are called physicians, inducing them to consider these effects as proceeding from contrary causes.

Also, when a body that is large and superior to the soul in power is joined with a small and weak intellect,—there being naturally two classes of desires in man, one of aliment on account of the body, the other of wisdom for the sake of our most divine part;—in this case, the motions of the more powerful prevailing and enlarging what is their own, but making the reflective part of the soul deaf, indocile, and oblivious, thus induce ignorance—the greatest of all diseases. There is one safety then for both—neither to move the soul without the body, nor the body without the soul; in order that by mutually resisting each other they may be equally balanced and in perfect health. The mathematician then, or any one else who ardently devotes himself to any intellectual pursuit, should at the same time engage the body in gymnastic exercises;—and the man, again, who is careful in rightly forming his body, should at the same time therewith unite the motions of the soul in the exercises of music and all philosophy; if at least he intends to be one, that may justly be called beautiful and at the same time right good.

LXX.—In this very same manner we ought to attend even to the parts of the body, that they may imitate the form of the whole:—for when the body is inwardly burnt and cooled by the things that enter it, and again, is moistened by things external, and suffers all the consequences of these affections; then if any one gives up his body when quiescent to these kinds of motions, he is overcome and perishes.* But if any one will imitate what we called the tutor and nurse of the universe, and never allow the body to be at rest, but

* Gr. *ὅταν μέν τις ἡσυχίαν ἄγον τὸ σῶμα παραδιδῷ ταῖς κινήσεσι, κρατηθὲν διώλετο.*

perpetually move it and assist its natural motions both within and without, by ever implanting in it certain agitations, and also by moderate agitation bring into order according to their mutual relations the wandering passions and parts of the body, he will not, as we said in our former discourse about the universe, place foe against foe, and suffer war and disease to be produced in the body,—but, on the other hand, combining friend with friend, will contrive to induce a state of sound health. Of all motions, again, that is the best which takes place in itself from itself: for this is particularly allied to intellect and the motion of the universe,—that produced by another being inferior:—whereas that is the worst of all motions, which, when the body is recumbent and at ease, moves it by means of others and only partially. Hence, therefore, of all modes of cleansing and giving consistence to the body, the best is that effected by gymnastics,—the second is that caused by easy conveyance, either in a ship or other suitable vehicle; but the third kind of motion, however useful perhaps to one in extreme need, must on no account be otherwise used by any one endued with intellect; and this is that medical kind of motion produced by pharmaceutical purgation:—for diseases, unless they are extremely dangerous, must not be irritated by medicines. Indeed, every form of disease in some respect resembles the nature of animals;—for the condition of the latter has allotted to it stated periods of life, both as respects individuals and entire races, and each animal separately of itself has its fated life apart from the affection arising from necessity:—because the triangles, which from the very first have power over each, are so composed, as to suffice only for a certain time: beyond which period no animal can extend its life. The same condition of things also takes place in the case of diseases; for if any one destroys them by medicine before the fated time, he will only produce great diseases out of small, and many out of few. On this account we must discipline all such maladies by proper diet, according as each has leisure, and not irritate by medicines an obstinate complaint.—And thus much may suffice to have been said concerning the common animal and its corporeal part,—how each governing himself and governed by himself, may pursue a life regulated by reason.

LXXI.—That part, however, which is to have the govern-

ment of the animal, should, as far as possible, be better provided, and earlier also, with the power of being the fairest and best in the art of ruling. To treat accurately indeed of these matters, would require a separate work of itself: but even pursuing it by way of mere by-work (ἐν παρέργῳ), in accordance with what has preceded, we shall not be inconsistent, nor fail in the end of our inquiries. We have often then before asserted that there are three kinds of soul within us, in three parts of the body, each having its peculiar motions; and so in the same way we must now briefly affirm, that when any one of them is in a torpid state and rests from its own proper motions, it must necessarily become extremely weak, and only by constant exercise attains the highest degree of strength:—we should be careful therefore that each may preserve its own motions in symmetry with all the rest.

But with respect to the highest and most leading part of our soul, [*i. e.* the human soul,] we should conceive as follows:—that the Deity assigned this to each as a dæmon;—that, namely, which we say, and say correctly too, resides at the summit of the body and raises us from earth to our cognate place in heaven:—for we are plants, not of earth, but heaven; and from the same source whence the soul first arose, a divine nature, raising aloft our head and root, directs our whole corporeal frame. In him, therefore, who has eagerly striven to satisfy the cravings of desire and ambition, all the conceptions engendered in his soul must necessarily be mortal; and he will necessarily, as much as possible, become entirely mortal, omitting no effort to improve such a nature. For one, however, who is sedulously employed in the acquisition of knowledge and true wisdom, and is chiefly practised in this one pursuit, it is altogether necessary, if he would touch on the truth, that he should be endued with wisdom about immortal and divine concerns; and as far as human nature is capable of immortality, he should leave no part neglected; and thus, as he ever cultivates that which is divine, and has a dæmon most excellently adorned residing within him, he will be exceedingly happy. But the culture of all the parts is one only,—that of assigning to each their proper nutriment and motion. But the motions allied to the divine part of our nature, are the reflective energies and circulations of the universe. These, then, each of us should pursue; restoring the revolutions in

our head that have been corrupted through being employed on generation, by a diligent investigation of the harmonies and circulations of the universe, with the view of assimilating the reflective power to the object of reflection according to its ancient nature;* for, by this assimilation, we shall obtain the end of the best life proposed by the gods to men, both present and future.

LXXII.—And now the discussion which we announced at the beginning concerning the universe, as far at least as concerns the generation of man, is very nearly completed; for as to the rest of the animals, how they were generated, we will only briefly describe them, except where necessity bids us enlarge: for a person may think that he is thus more in measure as concerns such an inquiry. On this subject, then, let us speak as follows:—Of the men that were born, such as are timid, and have passed through life unjustly, are, we suppose, changed into women in their second generation. At that time, then, and for that reason, the gods devised the love of copulation; constructing an animated substance, and placing one in us men, another in the women,—forming each in the following manner:—That passage for the drink, by which these liquids run through the lungs under the reins into the bladder, and which sends them forth as it receives them, by the pressure of the breath,†—this [the gods] made to pass into the condensed marrow, from the head, along the neck, and through the back-bone; and this we called seed in a former part of this discourse:—and this [the marrow], in consequence of being animated and endued with respiration, produces in the part where it respires a lively desire of emission,—thus perfecting in us the love of procreation. On this account, the nature of men, as respects their private parts, becoming insubordinate and imperious, like an animal not obedient to reason, tries through raging desire to gain absolute sway. The same is the case with the wombs, and

* Gr. *τῷ κατανοουμένῳ τὸ κατανοοῦν ἐξομοιῶσαι κατὰ τὴν ἀρχαίαν φύσιν*, &c. The meaning is, that where the reflective powers are employed in meditating on the universe, they are necessarily brought into harmony with the only true objects of intellect,—and which existed indeed from the first creation.

† This very erroneous view has been before alluded to in a note on ch. xlv. speaking of the lungs. Plato had evidently no knowledge of the action of the kidneys.

other connected parts of women,—so called, as forming an animal desirous of procreating children. This, when it remains without fruit long beyond its proper time, becomes discontented and indignant; and wandering every way through the body, it obstructs the passage of the breath, and throws women into extreme difficulties, causing all varieties of diseases, till at length the desire and love of both parties [*i. e.* the man and woman] cause the emission of seed, like fruit from a tree; by which emission, they sow in the womb, as in a field, animals invisible from their minute size, and yet unformed, which, as they become larger, they nourish within; and lastly, by bringing them to light, perfect the generation of animals.

LXXIII. Such is the process of generation in women and every female. Next succeeded the tribe of birds having feathers instead of hair, which were fashioned from men without vice indeed, but light-minded and curious about things on high, yet conceiving in their folly that the strongest proofs of these things are received through the sight [*i. e.* the senses]. Again, the race of wild animals with feet was generated from men, who made no use of philosophy, nor ever inquired into anything that concerned the nature of the universe,—and this, because they no longer employed the circulations in the head, but followed the guidance of those parts of the soul that reside about the breast. Owing to these pursuits, therefore, they fixed their fore-legs and head earthwards, as suited their nature,—having also long and variously-shaped heads, where the circulations of each were compressed by inactivity:—and hence their race became quadruped and multiped, the Deity giving a greater number of feet to those more than usually unwise, that they might be the more drawn towards the earth. But as regards the most unwise of these, which extend all their body along the ground, as if they had no longer any need for feet, the gods formed them without feet to creep on the earth. The fourth class is that living in the water, which was produced from such men as were to the last degree unthinking and ignorant, and whom those transformers of our nature did not think deserving of a pure medium of respiration, because they possessed a soul rendered impure by extreme transgression,—but drove them from the attenuated and pure atmosphere into the turbid and deep breathing-medium of

water :—and hence arose the tribe of fishes and oysters, and all other aquatic animals, which have received the most remote habitations, as a punishment of their extreme ignorance. After this manner then, both formerly and now, animals migrate into each other ; experiencing their changes through either the loss or acquisition of intellect and folly. We are now at length to say, that our discourse about the universe has reached its conclusion ;—for not only containing, but full of mortal and immortal animals, it has thus been formed *a visible animal embracing things visible, a sensible god of the intelligible, the greatest, best, and most perfect,—this one only-begotten* UNIVERSE.

THE END OF THE TIMÆUS.